News about

B. F. Goodrich Chemical *raw materials*

These 4 "Cold" Hycar Rubbers meet every tough-job need

THESE "cold" polymerized types of Hycar rubber have a host of applications, especially where toughest conditions must be met. Each offers specific advantages, that can help you improve or develop more saleable products. Check over each one, and write us for helpful, technical information on your specific requirements. Please write Dept. HB-10, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

Hycar 1041	***High acrylonitrile copolymer.*** Easy processing, excellent oil and solvent resistance. Used for oil well parts, fuel cell liners, fuel hose, rolls, lathe cut gaskets, packings, "O" rings, etc.
Hycar 1042	***Medium acrylonitrile copolymer.*** Easy processing, very good oil and solvent resistance, good water resistance, excellent solubility. Used for shoe soles, kitchen mats, printing rolls, "O" rings, gaskets, etc. GR-S and vinyl resin modifications, adhesives and cements.
Hycar 1043	***Medium low acrylonitrile copolymer.*** Easy processing, good oil and solvent resistance, very good low temperature properties. Used for gaskets, grommets, "O" rings, hose and other applications which require improved low temperature properties.
Hycar 1432	***Crumb form—Medium acrylonitrile copolymer.*** Directly soluble—no milling required. Used for cements and adhesives.

B. F. Goodrich Chemical Company

A Division of The B. F. Goodrich Company

Hycar Reg. U.S. Pat. Off. *American Rubber*

GEON polyvinyl materials • HYCAR American rubber • GOOD-RITE chemicals and plasticizers • HARMON colors

Shipping Philblack*

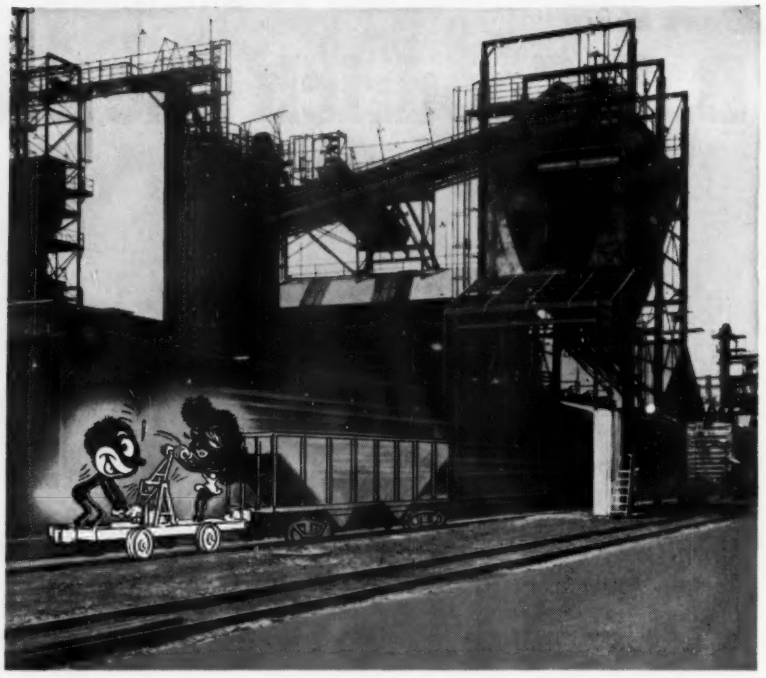
HANDLE WITH CARE is a sentiment we have constantly before us as we ship PHILBLACK from our plants to yours.

Bulk Philblack is loaded into hopper cars with a feather-light touch. Our new hopper cars themselves are the result of much study. They are big cars — as big as the law allows so that maximum loads are shipped each trip with resultant savings in car handling costs. Special pneumatic snubbers soak up jolts en route. New discharge valves prevent loss of Philblack and greatly facilitate unloading. As experience grows with our new hopper cars we receive reports of customers' unloading time reduced by as much as 30%.

Bag shipments by rail and truck are also speeded by advances in Philblack packaging. Our new flat and shaped bags stack like so many brick and they stay put. These new bags do not creep in transit. Shipments arrive in better shape. They unload much more rapidly.

Our interest in Philblack, of course, does not end with safe delivery on your receiving dock. We want you to get the most performance out of our Philblacks. This means that our Philblack technical representatives are happy to consult with you on your particular problems.

*A TRADEMARK



Philblack hopper cars are carefully guarded from moisture penetration during loading operations.

New Philblack bags ride firmly, are not prone to fall and tear. Philblack now occupies 25% less space in trucks and warehouses.

Know the Philblacks! KNOW WHAT THEY'LL DO FOR YOU!

A **Philblack A FEF Fast Extrusion Furnace**
Ideal for smooth tubing, accurate molding, satiny finish. Mixes easily. High, hot tensile. Disperses heat. Non-staining.

I **Philblack I ISAF Intermediate Super Abrasion Furnace**
Superior abrasion resistance at moderate cost. Very high resistance to cuts and cracks. More tread miles at high speeds.

O **Philblack O HAF High Abrasion Furnace**
For long, durable life. Good electrical conductivity. Excellent flex. Fine dispersion.

E **Philblack E SAF Super Abrasion Furnace**
Toughest black on the market. Extreme abrasion resistance. Withstands aging, cracking, cutting and chipping.

Phillips 66

PHILLIPS CHEMICAL COMPANY, Philblack Sales, 318 Water Street, Akron 8, Ohio. Export Sales: 80 Broadway, New York 5, N. Y. West Coast: Harwick Standard Chemical Company, Los Angeles, California. Canada: H. L. Blachford, Ltd., Montreal and Toronto.

GUSSETT

VULCANIZERS

WITH

GUSSETT EASY GLIDE QUICK OPENING DOORS

Cost Less to Own ...Less to Operate

Safe, Fast, Easy Door Operation

Note use of heavy lubricated bronze bushings at all wearing points and thrust bearing to support weight of door.

The Gussett Easy-Glide Quick-Opening Door is the result of almost forty years of practical experience in designing and building processing equipment for the rubber industry.

Fabricated of heavy steel pla:., it offers high strength and a higher factor of safety without excessive weight. Precision machining insures accurate seating and freedom from leakage.

The large-diameter hinge pin and door center pin turn in heavy, pressure-lubricated bronze bushings and the weight of the door is supported by heavy-duty roller thrust bearings to minimize time and effort required to open and close the door and insure long, trouble-free service. Hundreds of Gussett Easy-Glide doors are in use all over the world.

Easy-Glide Doors are furnished without extra cost (often at important savings) on all Gussett-built Vulcanizers . . . horizontal or vertical . . . 18 inches and larger . . . any desired length . . . for any working pressure up to 600 pounds.

WRITE OR WIRE FOR BULLETIN

GUSSETT BOILER & WELDING, INC.

1545 Whipple Road S. W. • Canton 10, Ohio

NEWS FOR NEOPRENE* USERS-

you get true reinforcement with new Plio-Tuf

PLIO-TUF is the newest high styrene copolymer to come from the laboratories of the Goodyear Chemical Division. Its unique combination of high impact resistance, high heat distortion point, hardness, lightness, stiffness and abrasion, chemical and electrical resistance has made it of great interest to the plastic industry as an injection molding, extrusion and post-forming resin.

Now, new evaluations make it of equal interest to the rubber industry. It has been found that PLIO-TUF reinforces all types of rubber, particularly Neoprene. Yes, for the first time, here is a resin that truly reinforces Neoprene to open entirely new fields of application.

PLIO-TUF is completely compatible with Neoprene. Low PLIO-TUF/high Neoprene stocks display excellent flex life and abrasion resistance, stiffness, high hardness as well as high modulus, low permanent set and exceptionally good aging properties. High PLIO-TUF/low Neoprene blends display proportionately more resinous properties with excellent impact resistance as the outstanding advantage.

The low PLIO-TUF/high Neoprene stocks are of particular interest, since they combine the particular properties of Neoprene with the already established advantages of other rubber-resin blends. Important, too, are the facts that these new combinations process and cure in the conventional manner on existent equipment.

Why not probe the possibilities of PLIO-TUF /Neoprene blends in your laboratory? A note or post card will bring generous samples and full technical help, promptly and without obligation. Just write to:

Goodyear, Chemical Division
Akron 16, Ohio

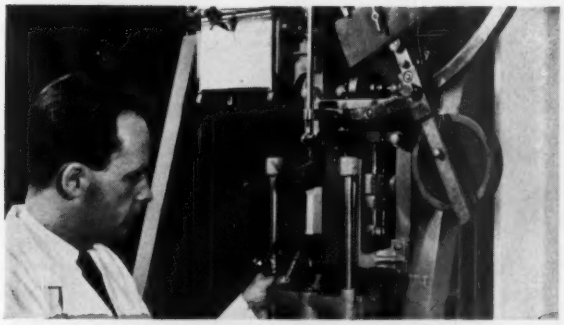
CHEMICAL
GOODYEAR
DIVISION

*Neoprene—T.M. E. I. Du Pont de Nemours Company

Chemigum, Pliobond, Pliolite, Plio-Tuf, Pliovic—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

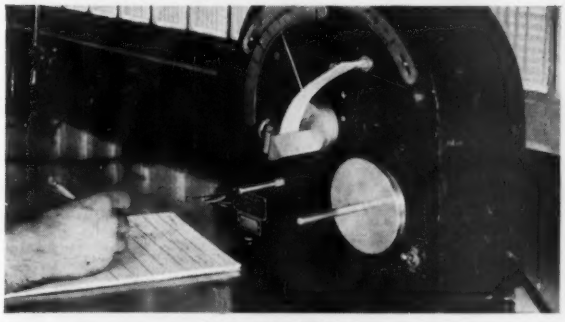
Use-Proved Products — CHEMIGUM • PLIOBOND • PLIOLITE • PLIO-TUF • PLIOVIC • WING-CHEMICALS — The Finest Chemicals for Industry

Just look what Plio-Tuf does for Neoprene:



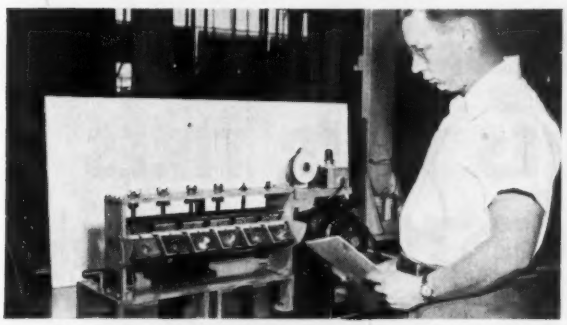
TENSILE STRENGTH
20-80 pts. PLIO-TUF/100 pts. Neoprene = 1760-2150 psi

HARDNESS, SHORE A
20-80 pts. PLIO-TUF/100 pts. Neoprene = 60-96



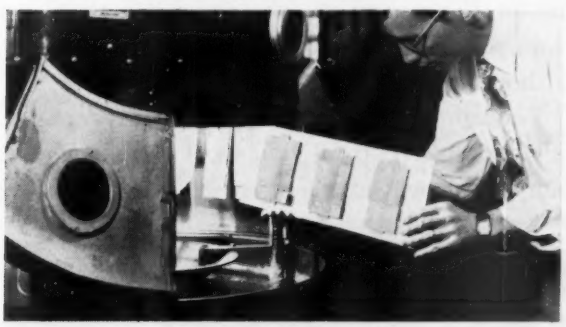
STIFFNESS, OLSEN
20-80 pts. PLIO-TUF/100 pts. Neoprene = 551-6545 psi

ABRASION, TABER, H-22 WHEEL
20-80 pts. PLIO-TUF/100 pts. Neoprene = 0.713-0.224 gms. loss



FLEX RESISTANCE, ROSS
20-80 pts. PLIO-TUF/100 pts. Neoprene = 202, 270
–1600 cycles for rating of 10

PERMANENT SET
20-80 pts. PLIO-TUF/100 pts. Neoprene = 14.05-55.50%



AGING, WEATHEROMETER, 96 HOURS
Considered exceptionally good over complete range of reinforcement

CHEMICAL RESISTANCE
Varies from good to excellent, depending upon resin content

NOTE: Four test compounds were used to obtain the above results. These consisted of 100 parts Neoprene, 4 parts MgO, 5 parts ZnO and 20, 40, 60 or 80 parts PLIO-TUF. All compounds were cured 30 minutes at 305° F.

CIRCOSOL-2XH GIVES YOUR TIRES THE EXTRA SAFETY CUSTOMERS WANT

Circosol-2XH is the elasticator that gives you the tougher, more resilient rubber needed to make safer tires. And it does it without jacking costs sky high. Enough Circosol-2XH for an 8.00 x 15 size 100 level tire costs less than 2¢ more than the cheapest softener you can buy.

Tires made with Circosol-2XH have greater resistance to abrasion, and can take impacts and a rougher all around beating than tires made with cheap softeners. Circosol-2XH helps inhibit the spread of cuts and helps tires go through hard driving on hot summer roads without damaging heat build-up.

You can get the full story on the advantages of Circosol-2XH from your local Sun Oil Company Representative—or write Dept. RA-10.

INDUSTRIAL PRODUCTS DEPARTMENT

SUN OIL COMPANY

SUNOCO®

PHILADELPHIA 3, PA. • SUN OIL COMPANY LTD., TORONTO & MONTREAL

Refiners of famous High-Test Blue Sunoco Gasoline

RUBBER FABRICATORS NEED ACCURATE CUTTING DIES

For Cutting

Rubber, Neoprene, Plastics, etc.
Sheeting, Foam, Sponge, Cellular,
Cured & Uncured

Gang Dies Our Specialty

- **Accuracy to close Tolerances**
- **Durability**
- **Genuine Understanding of the problems of rubber goods manufacturers**

MALLET HANDLE DIES

PURPOSE — For those who have no machinery and do not wish to purchase any. For Cutting — Rubber, Neoprene, Plastics, etc.

ADVANTAGE — Cut direct from bolts or not.

SERVICE—One to three days.

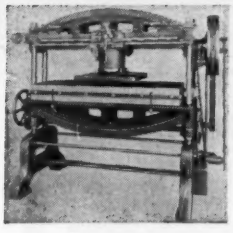
STEEL RULE CUTTING DIES

Used on Die Cutting Press, Printing Press or Power Press

PURPOSE — Especially suited for cutting — Rubber, Neoprene, Plastics, etc.

ADVANTAGE—Low in cost. Suitable for long production runs. It is necessary to cut from rectangular sheets which are fed into the press.

SERVICE—One day service.



STEEL RULE CLICKER DIES

Use On Clicker Machine or Dinker Press

PURPOSE—For Cutting Rubber, Neoprene, Plastics, etc.

ADVANTAGE — More reasonably priced than the all steel dies. Recommended for small and medium quantities where cost of an all steel die is not warranted.

SERVICE—One day service.

ALL STEEL DIES

Use On Clicker Machine or Beam Press or Power Press

PURPOSE—For Cutting—Rubber, Neoprene, Plastics, etc.

ADVANTAGE — Cut direct from rolls without first cutting into sheets.

SERVICE—One to three day service on dies.

Dies for cutting
Gaskets, flashing from molded parts, rubber soles, foam and sponge for furniture padding, inflated toys, clothing and footwear, etc.

DIE CUTTING SERVICE

PURPOSE—For those who prefer to have their cutting done by others.

ADVANTAGE—We can die cut your product for you on our own presses rapidly and economically at a low "per thousand" cost.

SERVICE—One to three days.

SAME DAY SERVICE

ACCURATE

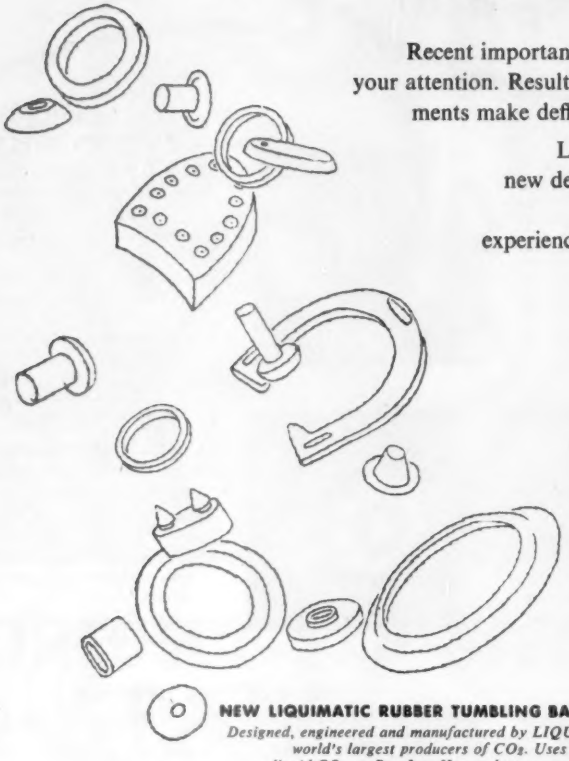
STEEL RULE DIE MANUFACTURERS

24-28 West 21st Street, New York 10, N. Y. CHelsea 2-0860-1

Subsidiaries: American Fabricators; Interstate Die Cutting Co., Inc.

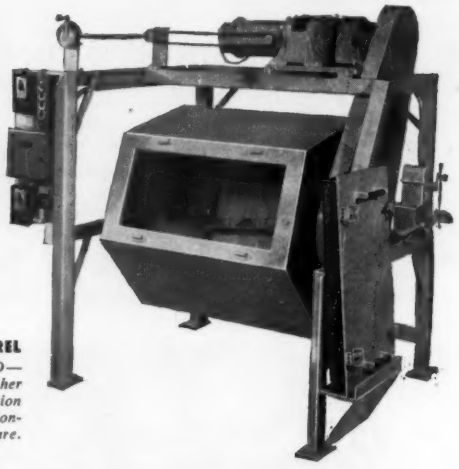
Intelligent Service to the Rubber Goods Industry for Over 23 Years

New Developments in CO_2 rubber tumbling Cut Deflashing costs



Recent important developments in CO_2 rubber tumbling deserve your attention. Results of intensive LIQUID research, these improvements make deflashing more efficient, economical and practical.

LIQUID engineers are anxious to discuss these new deflashing developments with your engineering or production personnel. These qualified, experienced experts are always available for consultation on any CO_2 or Dry Ice application. Just mail the coupon below.



NEW LIQUIMATIC RUBBER TUMBLING BARREL
Designed, engineered and manufactured by LIQUID—world's largest producers of CO_2. Uses either liquid CO_2 or Dry Ice. Heavy duty construction throughout. Stainless steel, 3" Rubatex insulated construction. Automatic control of time and temperature.

RED DIAMOND CO_2

IN WHICHEVER FORM YOU PREFER . . .

SOLID
RED DIAMOND Dry Ice
In the familiar 10" blocks.

LIQUID
Liquiflow
Tank truck to CO_2 receiver.

LIQUID also produces:
Gasweld Flame Welding and Cutting Equipment • Red Diamond Commercial Gases – Acetylene, Oxygen, Hydrogen and Nitrogen • A full line of Arc and Spot Welding Equipment and supplies

THE LIQUID CARBONIC CORPORATION
3100 SOUTH KEDZIE AVENUE • CHICAGO 23, ILLINOIS

THE LIQUID CARBONIC CORPORATION
3102 SOUTH KEDZIE AVENUE • CHICAGO 23, ILLINOIS

I would like more information on LIQUID's new developments in Rubber Tumbling.

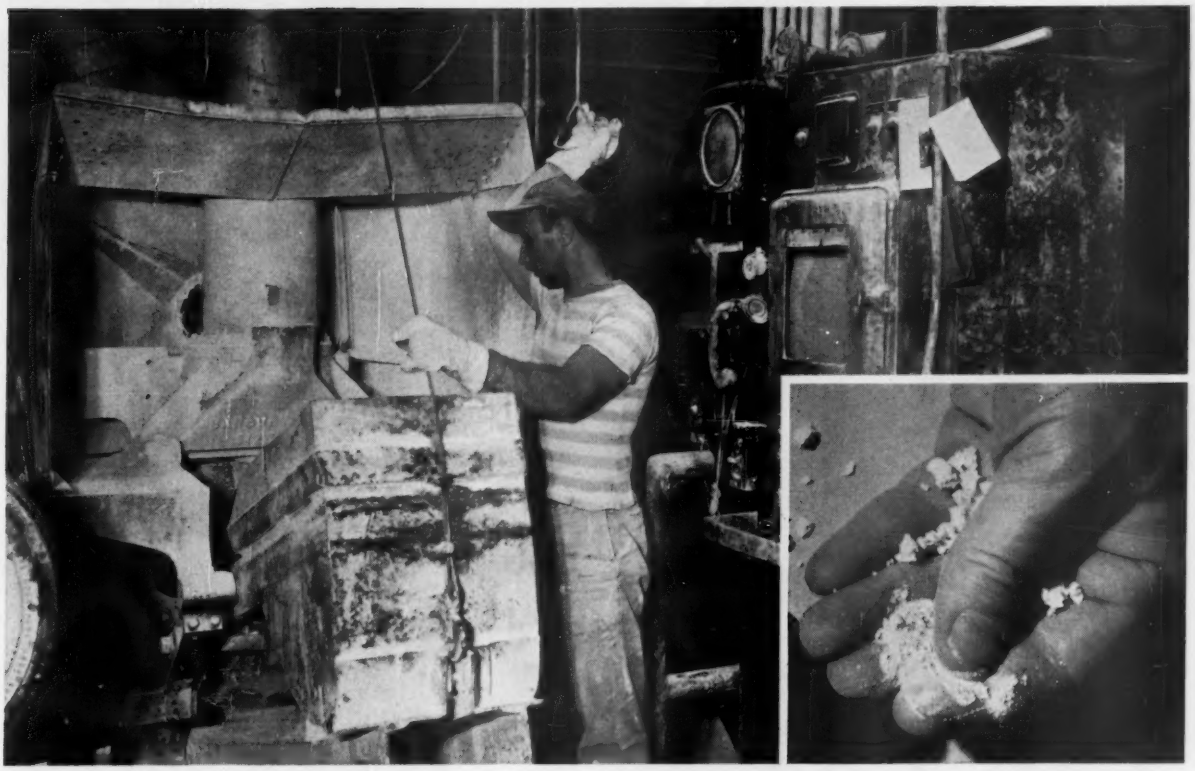
NAME_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

MUCH LESS FLY LOSS than pictured here is yours when you use easily friable (see inset), minimum dusting granules of PLIOLITE S-6B. More usable reinforcement per pound of resin, better working conditions, lower costs result.



SAVE RESIN—SAVE MONEY

on shoe sole stocks with granular PLIOLITE S-6B

PICTURED above is what your Banbury *won't* look like, if you use PLIOLITE S-6B—the *first* rubber-reinforcing, high styrene-butadiene copolymer to be supplied in easily friable, minimum dusting granules.

This granular form not only means less fly loss during mixing, but also permits maintenance of uniformity that results in a constant, higher bulk density. And this spells lower costs through smaller, more manageable bags and larger Banbury charges.

Moreover these granules quickly break down into a fine powder to give you an easier, faster, more thorough dispersion—more reinforcement per pound—and a better combination of shoe sole properties – than any other reinforcing resin. You can prove all this in your own laboratory with the generous samples and technical assistance that come from writing to:

Goodyear, Chemical Division, Akron 16, Ohio

CHEMICAL GOODYEAR DIVISION

Chemigum, Pliobond, Pliolite, Plio-Tuf, Pliovic—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

Use-Proved Products — CHEMIGUM • PLIOBOND • PLIOLITE • PLIO-TUF • PLIOVIC • WING-CHEMICALS — The Finest Chemicals for Industry

YOU CAN GET

CLOSER GAUGE CONTROL

with the F-B® "Tri-angular" calender

The right-angle roll arrangement of the Farrel-Birmingham Tri-angular calender assures closer control of gauge in any type of production requiring two passes. With only two rolls in any plane, there is no pressure from a third roll to affect roll settings and cause fluctuations in gauge. Hydraulic pullback cylinders hold the rolls in position, eliminating backlash in boxes and adjusting screws.

The angle of the rolls makes feeding easier. No feed table is necessary because the lower roll supports the feed bank. Both the bank and the guides are easily accessible from the floor level.

Where even closer control of gauge is desired a motorized crossed-axes device for regulation of roll crown is available. Other optional features include rolls drilled longitudinally for close temperature control, and the Farrel Uni-drive.

The Tri-angular calender is available in a choice of sizes. Write for further information.

FARREL-BIRMINGHAM COMPANY, INC.
ANSONIA, CONN.
Plants: Ansonia and Derby, Conn., Buffalo, N. Y.
Sales Offices: Ansonia, Buffalo, New York, Akron, Chicago, Los Angeles, Houston FB-966

Farrel-Birmingham®

CYCOLAC®

THE *New* HIGH-IMPACT THERMOPLASTIC RESIN

for ALL-AROUND ECONOMY in production . . .

Cycolac is a single uniform resin which is permanently thermoplastic, permitting fast molding, calendering and extruding, and reuse of trim and cutting scrap. Also economical to form from press-polished sheets by vacuum, air-pressure, or mechanical methods over inexpensive molds of wood, plaster, aluminum, etc.

Some of the 1,001 End Products Made with CYCOLAC

- Chemical & Industrial Piping
- Molded Pipe & Industrial Fittings
- Signs - Display Racks
- Kitchen Accessories
- Appliance & Tool Handles
- Rain Gutters
- Battle Closures
- Desk Tops
- Profile Extrusions

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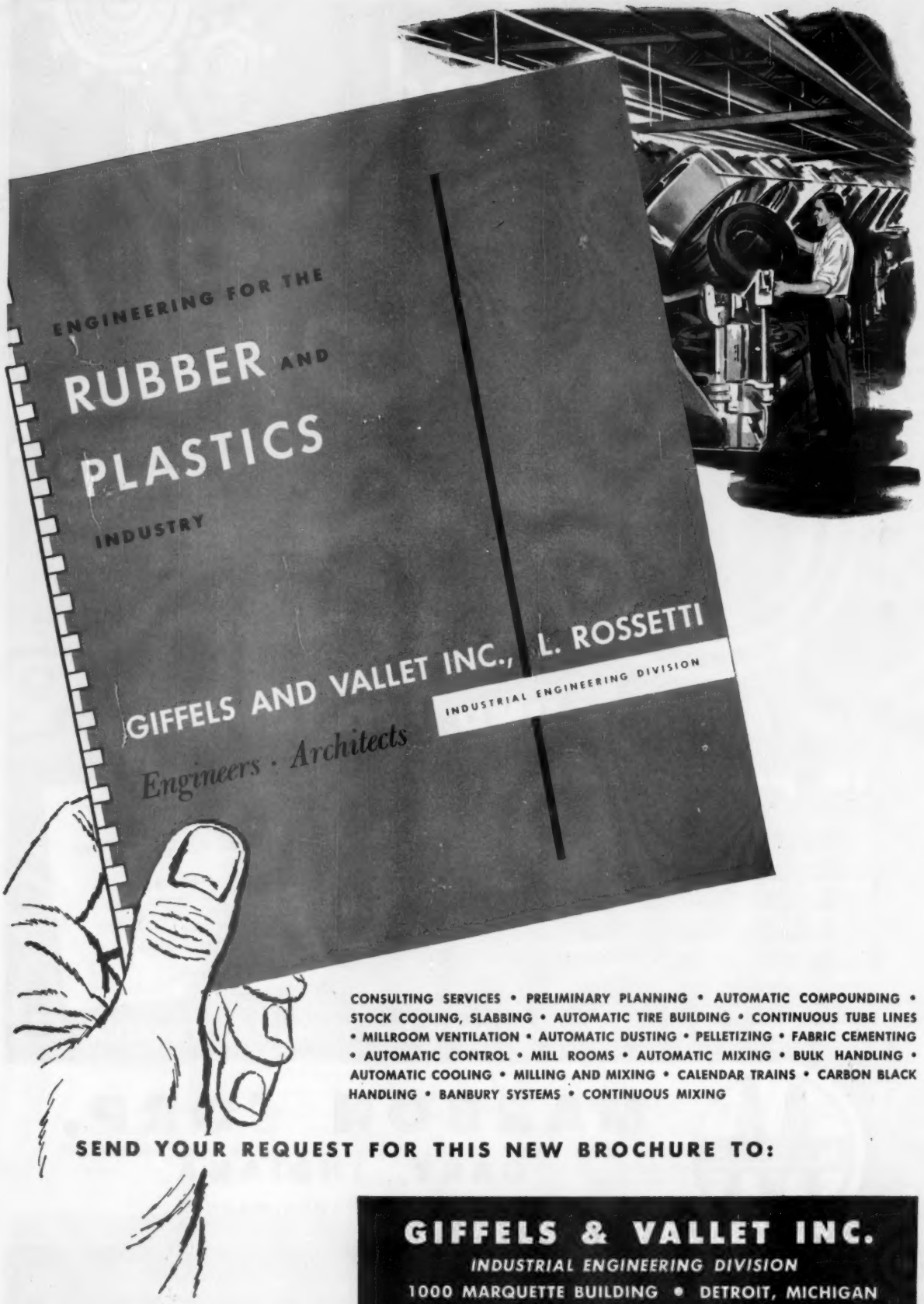
Marbon

MARBON CORP.

GARY, INDIANA

SUBSIDIARY OF BORG-WARNER

MARBON . . . *Precision Resins for Precision Made Products*



CONSULTING SERVICES • PRELIMINARY PLANNING • AUTOMATIC COMPOUNDING • STOCK COOLING, SLABBING • AUTOMATIC TIRE BUILDING • CONTINUOUS TUBE LINES • MILLROOM VENTILATION • AUTOMATIC DUSTING • PELLETIZING • FABRIC CEMENTING • AUTOMATIC CONTROL • MILL ROOMS • AUTOMATIC MIXING • BULK HANDLING • AUTOMATIC COOLING • MILLING AND MIXING • CALENDAR TRAINS • CARBON BLACK HANDLING • BANBURY SYSTEMS • CONTINUOUS MIXING

SEND YOUR REQUEST FOR THIS NEW BROCHURE TO:

GIFFELS & VALLET INC.
INDUSTRIAL ENGINEERING DIVISION
1000 MARQUETTE BUILDING • DETROIT, MICHIGAN

A favorite material

in hundreds of industrial plants

Piccolyte

the versatile synthetic resin

PALE COLOR—Exceptionally light-colored hydrocarbon resin.

NEUTRAL—Low acid number—unsaponifiable.

ECONOMICAL—Low in first cost and soluble in low-cost petroleum solvents.

LOW-COST—Made by modern process that permits low selling price.

PERMANENT—Stable and non-yellowing—unaffected by alkalies and salts.

WATERPROOF—Piccolyte resins are unaffected by water or moisture.

MANY GRADES—Standard and special grades in melting points from 10° C to 135° C.

Physical and Chemical Properties—Standard Grades

Grade Number	*Melting Point ± 3°C*
S-10	10° C
S-25	25° C
S-40	40° C
S-55	55° C
S-70	70° C
S-85	85° C
S-100	100° C
S-115	115° C
S-125	125° C
S-135	135° C

The properties of PICCOLYTE RESINS are:

COMPOSITION—Composed essentially of polymers of pinenes, predominately beta pinene.
ACID RESISTANCE—Inert to dilute acids.
ALKALI RESISTANCE—Unattacked by 10% solutions of alkalies.
SALT RESISTANCE—Unattacked by salt solutions of varying pH.
HEAT RESISTANCE—When held at 600° F for six hours no darkening in color was observed.
SAPONIFICATION—Saponification number approximately zero.
ACIDITY—A neutral resin, acid number approximately zero.
SPECIFIC GRAVITY—Has low specific gravity, varying with melting point between 0.98 and 1.00.
THERMOPLASTICITY—A readily thermoplastic resin.
MELTING POINTS—Various melting points available from 10° C to 135° C on the Ball and Ring softening point method. (Tolerance, 3° C).
COLOR—A 50% solution in mineral spirits approximately color 5 on Gardner 1933 scale.
SOLUBILITY—Completely soluble in aliphatic hydrocarbons.
ASH—Less than 0.1%.
FORM—Solid.
PACKAGE—Solid grades in light gauge drums; plastic grades in heavy, open-head drums.

Pennsylvania Industrial Chemical Corp.
Clairton, Pennsylvania

Plants at
Clairton, Pa.; West Elizabeth, Pa.; and Chester, Pa.
District Sales Offices
New York • Chicago • Philadelphia • Pittsburgh
Distributed by HARWICK STANDARD CHEMICAL COMPANY, AKRON 5, OHIO

Pennsylvania Industrial Chemical Corp. (RA)
Clairton, Pennsylvania

Please send me a copy of your bulletin describing PICCOLYTE Synthetic Resins and samples of grade for (application):

NAME..... POSITION.....

COMPANY.....

ADDRESS.....

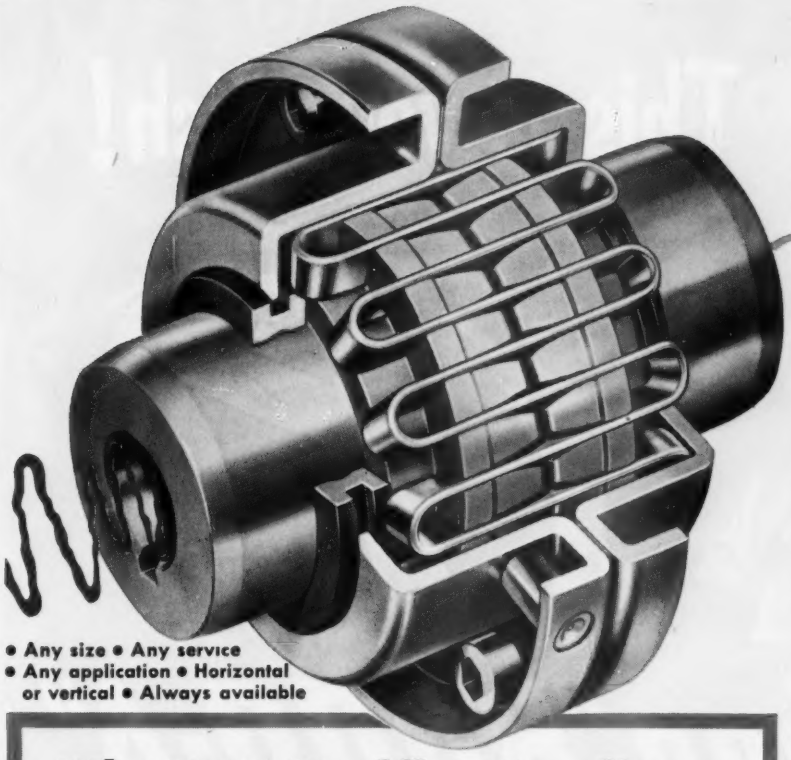
Paper coaters: Improved coated paper specialties mean a bigger market for you—and better coated papers begin with new Opalon 410 plastisol resin. You'll find it profitable to investigate the *product* and *production* advantages Monsanto's Opalon 410 delivers in the manufacture of coated papers for luggage, shoe findings, simulated leather notebooks and other applications.

For a better product—Opalon 410 provides the strength, durability and resistance to wear your product requires. It furnishes extra resistance to greases, oils, water, detergents, and discoloration caused by sunlight. Opalon 410, when used with other quality plastisol ingredients, offers a high degree of crack-free flexibility at low temperatures. It gives good adhesion, and makes possible a wide color range of imitation leather and other embossed and decorated effects.

For fast production—Opalon 410 means easy compounding; a simple stir-in process that requires no expensive equipment. It needs no milling or grinding during compounding . . . streamlines processing operations. A fast-dispersion type of resin, it increases your speed of plastisol preparation and assures the uniformity of dispersion necessary for quality coatings.

Why not look into Opalon 410 *stir-in* vinyl plastisol resin for your paper coating needs today? For complete information, write: MONSANTO CHEMICAL COMPANY, Plastics Division, Room 6903, Springfield 2, Mass.

MONSANTO
CHEMICALS AND PLASTICS
SERVING INDUSTRY...WHICH SERVES MANKIND



• Any size • Any service
• Any application • Horizontal or vertical • Always available

Why FALK Steelflex Couplings give the *finest* protection for connected machinery

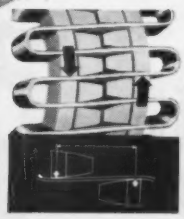
Maximum protection of connected machinery is best provided by Falk Steelflex Couplings because, thanks to their exclusive design, they overcome the damaging conditions of shock loads, shaft misalignment and vibration. How this unique multiple protection is made possible is shown at the right.

Falk Steelflex Couplings give the most economical protection, too, because they make connected machinery last longer and give better service. Furthermore, when actual coupling costs are figured per year of service, Falk Steelflex Couplings show substantial savings through their rugged all-steel construction, easy interchangeability and low maintenance requirements.

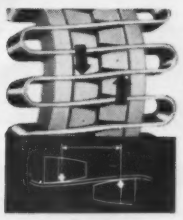
The basic Type F Steelflex Coupling—in 33 sizes to cover capacities from 2/5 through 70,000 hp per 100 rpm—meets over 90% of all industrial applications. Special or Dual Purpose Steelflex Couplings are available for problem applications. Write to Department 247 for engineering bulletin, including selection and dimension details.

Exclusive FALK Steelflex grid-groove design smothers shock and vibration.

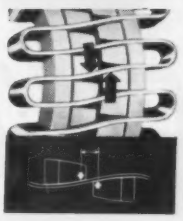
The damaging effects of shock and vibration can shorten the life of any connected machinery. Here is how the Steelflex grid-groove design overcomes these common enemies.



Under LIGHT LOADS
The gridmember bears only at outer edges of grooves. The long span between points of contact remains free to flex under load variations.



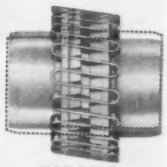
Under NORMAL LOADS
As load increases, the distance between supports on the grooves is shortened proportionately, but a free span remains to cushion shock loads.



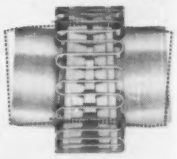
Under SHOCK LOADS
Under extreme overloads, the grid-member bears fully on the grooves and transmits full load directly. The coupling remains flexible, within its rated capacity.

...Accommodates shaft misalignment and free end float

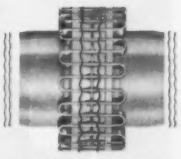
Basic maintenance procedure dictates regular inspection and correction of shaft alignment. Between inspections, Steelflex couplings provide protection by accommodating unavoidable shaft misalignment and end float. The gridmember which connects the two hubs of a Steelflex coupling is not fastened to either hub, so each hub can shift without imposing load on the other shaft.



PARALLEL MISALIGNMENT



ANGULAR MISALIGNMENT



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THE FALK CORPORATION, Milwaukee 8, Wisconsin

MANUFACTURERS OF

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- Flexible Couplings
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Dixie 60 gives the performance and durability currently demanded of stocks subjected to severe service.

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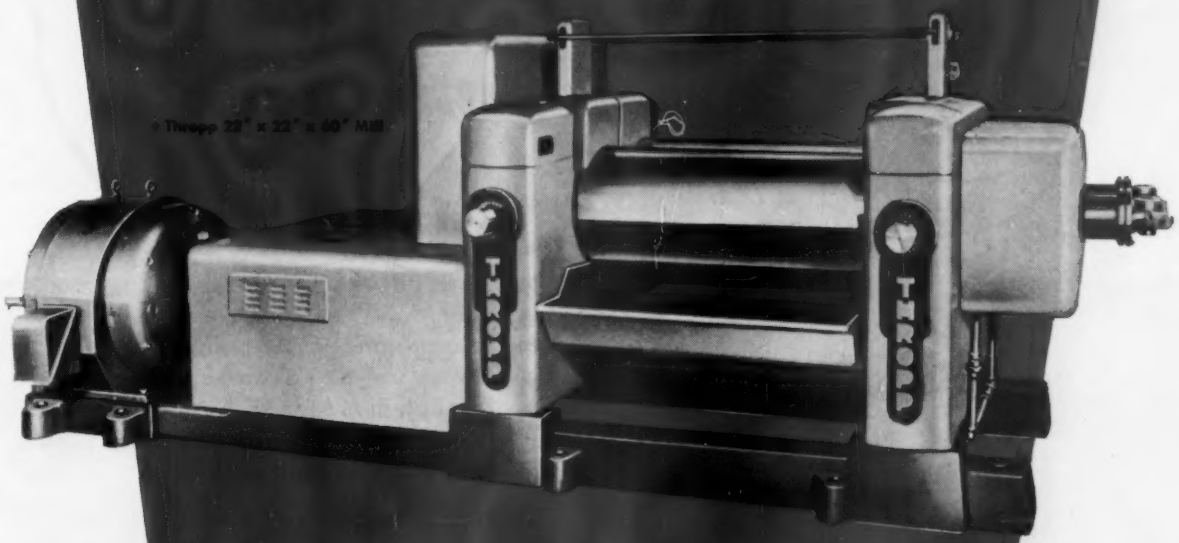
the mill YOU designed!



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"CLIMCO LINERS *separate perfectly from the stock"*

Stock adhesions at any point in production mean time lost and extra expense. You can avoid such headaches by using Climco Processed liners that can be readily peeled from the stock without sticking.

Climco Processing of your liners assures many other profitable advantages: Liner life is greatly increased, tackiness of the stock is preserved, and gauges are more easily maintained. Latitude in compounding is enlarged, lint and ravelings are eliminated and horizontal storage is facilitated.

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Tells all about Climco Liners and Linerette and how to get better service from liners. Write for your copy now.

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Treatment Contains NO OIL OR WAX
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LOW COST

OUTERWEAR VINYL COMPOUNDING

plus

HIGHER QUALITY MANUFACTURED

VINYL PRODUCTS

FIRST all-decyl adipate (introduced by Cabot in July, 1952) **STILL FIRST IN QUALITY**

Cabflex® DDA

CABOT's di-decyl adipate

- Cabflex® Di-OP
  di-iso-octyl phthalate
  standard primary plasticizer
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  high molecular weight diester imparting remarkably low volatility
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  di-iso-octyl adipate
  standard low temperature plasticizer
- Cabflex® DOA
  di-2-ethylhexyl adipate
  standard low temperature plasticizer
- Cabflex® ODA
  iso-octyl decyl adipate
  improved low temperature permanence in vinyl compounds
- Cabflex® DDA
  di-decyl adipate
  low temperature diester with low volatility and high efficiency
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  low volatility, good water immersion properties impart excellent low temperature permanence
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  hydrocarbon oil plasticizer
  low cost plasticizer, with plasticizer efficiency of 1.5; up to 50% compatibility with octyl-phthalate type plasticizers

The famous "All-Weather-Jacs" worn by the boys are manufactured by Central Sportswear Manufacturing Company, Boston

GIVES

- Retention on aging of drape and flexibility over a wide temperature range
- Low viscosity in plastisols

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Consult with our Technical Service Department for the solution to any rubber or plastic pigmentation problem you may have. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; Atlanta 2; Boston 6; Chicago 3; Cleveland 15; Los Angeles 22; Philadelphia 3; Pittsburgh 12; Portland 9, Ore.; San Francisco 7. In Canada: Canadian Titanium Pigments Limited, Montreal 2; Toronto 1.

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FOR MOLDING GRINDING WHEELS

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OVER 50 years' experience in the manufacture of metal, rubber and plastic-forming presses is represented here. Consult with us on your hydraulic press requirements.

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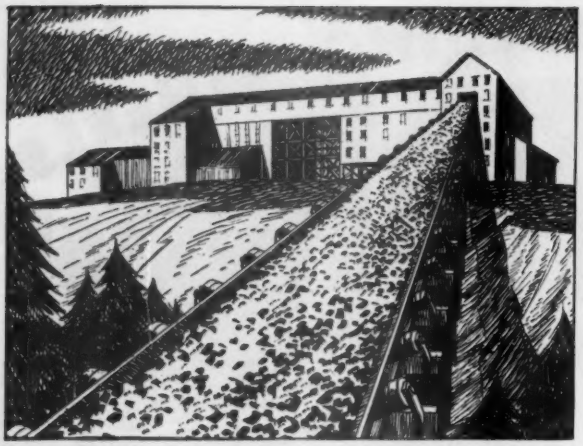
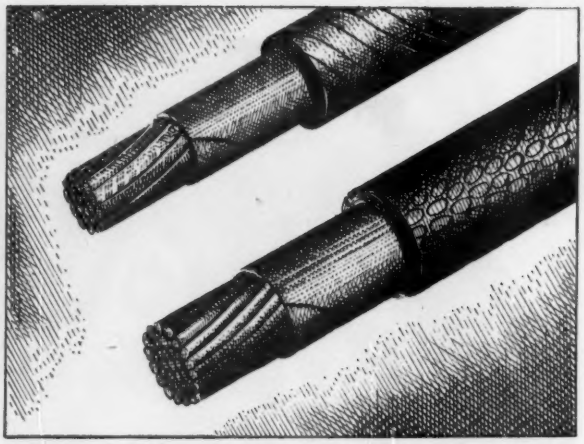


For industrial conveyor and power transmission belts, Wellington Sears has a complete line of fabrics to insure long life and top performance.



"Columbus" sheeting is ideally suited for cable wrapping and other rubberized mechanical goods because of its constantly uniform quality.

YOU GET VERSATILE FLEXIBILITY WITH WELLINGTON SEARS HOSE DUCK

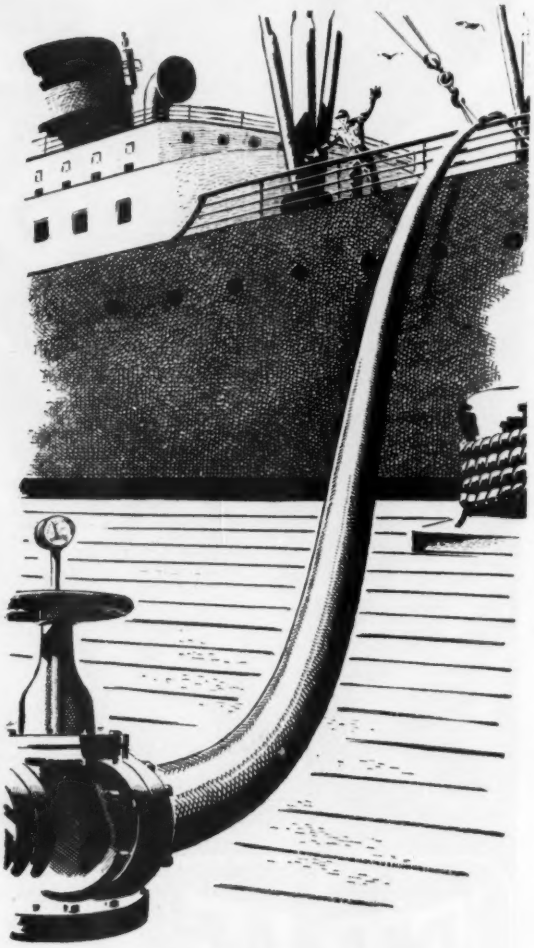
Service-proven in a wide variety of industrial hose applications, Shawmut Hose Duck is woven to lead a long and flexible life.

This Wellington Sears duck is a soft, strong, plied-yarn cotton fabric assuring flexibility and good impregnation. You'll find it available in many standard, as well as special, constructions for specific requirements.

With over 100 years' experience in industrial fabrics, Wellington Sears offers a complete line of cotton ducks for hoses of all types, belting and other mechanical rubber products . . . also fabrics utilizing the unique properties of high tenacity rayon, nylon and other fibers for rubberized specialties of many kinds.

If it's a rubber-and-fabric problem — talk it over with Wellington Sears.

Write for your free copy of "Modern Textiles for Industry" which includes pertinent information on rubber applications. Address: Wellington Sears Co., Dept. L-2, 65 Worth St., N. Y. 13.



Superior Fabrics for the Rubber Industry

Belting duck	Airplane cloth
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NOBS NO.1 Accelerator

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The Greatest Delayed-Action Accelerators of Them All!

NOBS No. 1 gives outstanding results with reinforcing furnace blacks in tire compounding and molded products; excellent for natural, synthetic and reclaimed stocks.

NOBS SPECIAL assures the greatest possible protection against scorching.

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- Fast, easy mixing
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We are proud to announce another first of real significance to the rubber industry . . . Freeze Stabilized Gen-Tac Latex. Through this important development, it is now possible to make shipment of Gen-Tac in temperatures down to 0°F. If the Gen-Tac is frozen by exposure to such temperatures, it will recover to its normal state upon thawing.

Our Research Laboratories have had drums of Freeze Stabilized Gen-Tac stored in the open continuously since September, 1952. The Latex is in perfect condition, and the bonding strength is as high today as that of freshly made Gen-Tac which has not been stabilized.

No change has been made in Gen-Tac other than the incorporation of the unique stabilization system, so Freeze Stabilized Gen-Tac may be used as a replacement for, or interchangeably with standard Gen-Tac. It has been thoroughly tested by our Tire Development Department and is now being used as standard production material.

General's Gen-Tac offers the additional exclusive advantage of freeze-stabilization at no added cost. For further information on Freeze Stabilized Gen-Tac or other General Tire Chemical Products, just fill out the coupon below.

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STREET_____

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Now! Hot Stretch your Nylon Tire Cord

at

CONSTANT *Temperature*
CONSTANT *Time*
CONSTANT *Tension*
VARIABLE *Line speeds*

IOI's *new* ROLLEVATOR OVEN* *eliminates need of continually balancing 3-T's... enables you to set for optimum results and keep them constant*

Trade Mark

THE ROLLEVATOR OVEN is an achievement accomplished by IOI as the result of more than four years of engineering and construction of full width, high tension equipment for dipping and hot stretching nylon fabric. It takes the 3 T's out of the category of variables and makes them constants. No longer must the 3 T's be continually balanced. Now you can hot stretch nylon at *constant* temperature, *constant* time and *constant* tension at *any* line speed.

Fast or slow, start-up or shutdown, the oven temperature is always the same—no more costly cold-air purges for shutdowns—no more elaborate control equipment—no reason for varying the oven temperature. There is but one temperature that is best for stretching nylon fabric and the Rollevator Oven enables you to set for that temperature and forget about it from that point on!

What about time? With temperature constant, hot stretch exposure time can not vary with line speed. The unique design of the Rollevator Oven automatically insures that each and every yard of fabric is hot stretched for the same length of time at the optimum temperature, at any line speed.

Tension, the third vital quality factor, is also held constant in this Industrial Ovens system. More closely so and at higher limits than ever before, because of improved design in the hold back and pull roll stands.

*Patent applied for.

Get the full story on this completely new Rollevator Oven system. Write, wire or phone:

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QUICK TRIM FLASHING

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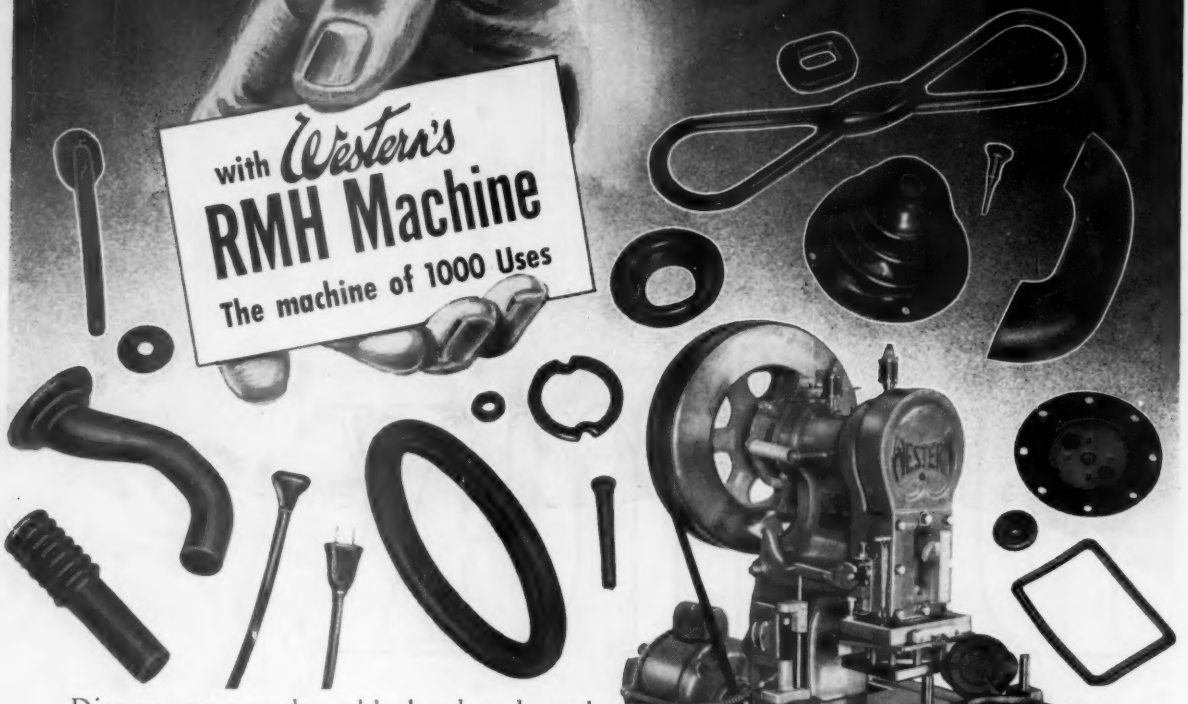
The machine of 1000 Uses



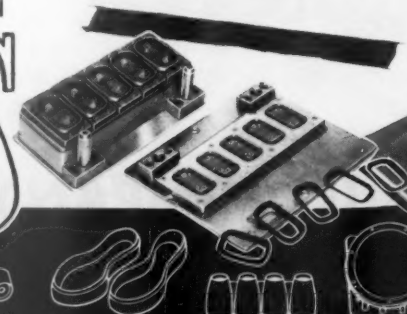
Dies cut on a replaceable hardened steel plate. Foot control speeds operation. Simple, positive pressure adjustment. Positive safety devices on machine. ½ H.P. motor.

Cuts, punches and trims flashing
in one swift operation!

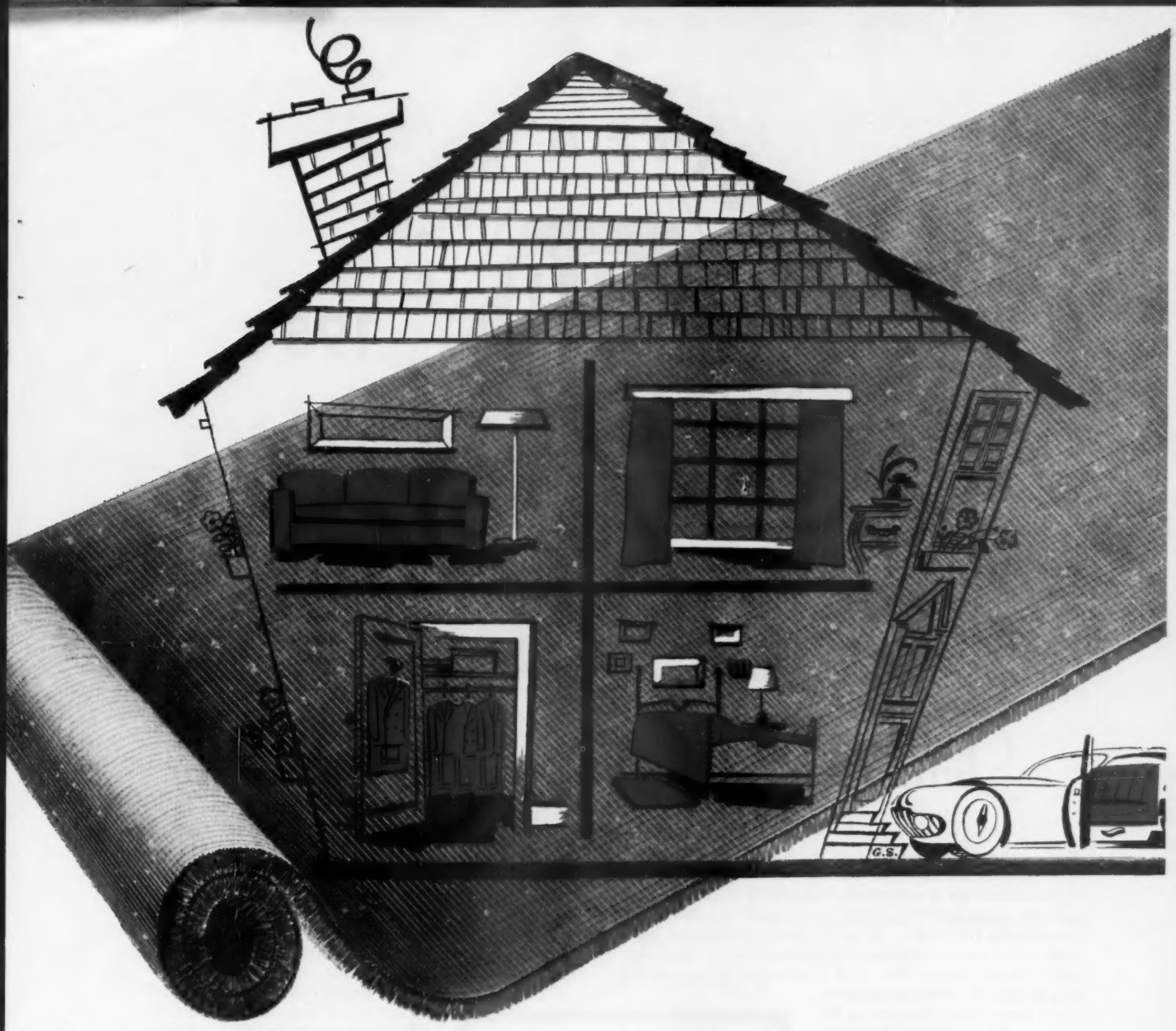
Send for our illustrated catalog

CUTS PARTS FROM SHEET STOCK SEND US A SAMPLE of parts to be cut or flash trimmed for our recommendations.

WE SPECIALIZE IN
DIES



WESTERN SUPPLIES CO., 2920 CASS AVE., SAINT LOUIS 6, MO.



When Textile Executives "SEE RED"
it's time to coat with KRALAC®

- **Do coating compounds often cause dye *discoloration and breakdown* in your upholstering fabrics?**
- **Do your decorative flat fabrics sometimes suffer from *poor body and strength*?**
- **Do finishing materials in your rayon fabric processing tend to *rub off and become tacky*?**

Then, it's high time you used Kralac and stopped "seeing red" when mill reports **continually indicate coating and finishing problems.**

New Kralac is a plastic latex especially developed by Naugatuck Chemical for coating and finishing both pile and flat fabrics. Not only does it end dye discoloration, it also improves locking, tensile and tear strength. And it never rubs off and becomes tacky. What's more, Kralac has far superior clarity, **is practically odor-free, gives high tensiles without curing.**

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Find out how Kralac can **turn your problems into profits** – can give your product a millful of wonderful new properties quickly, easily, safely and surely. Send the coupon below.

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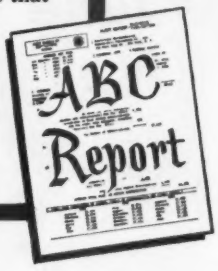

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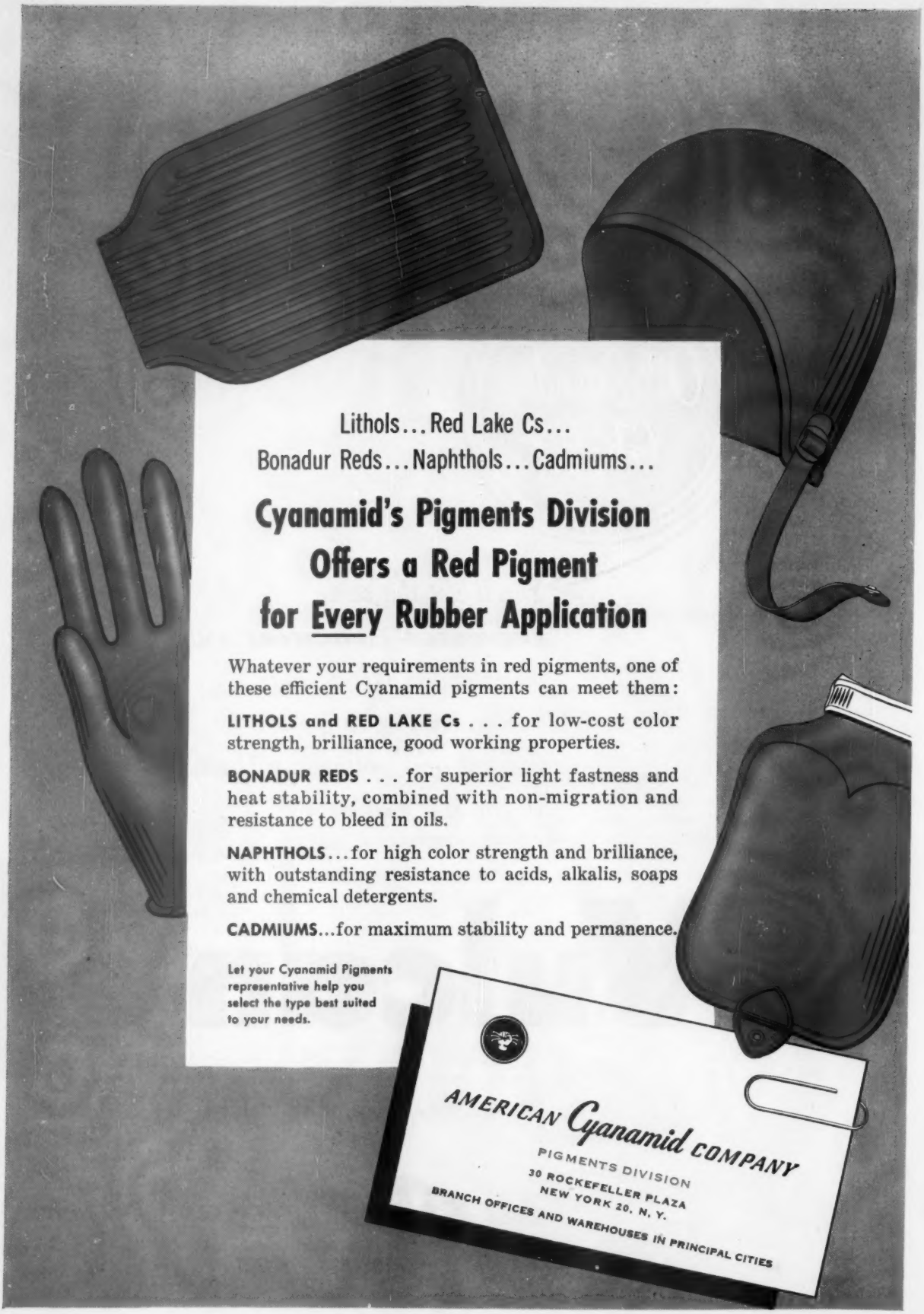
You'll get the same ***Increased Roadwear*** *with oil-extended GR-S that you've been getting with natural and synthetic rubbers, if you use* ***Cabot's...***

Vulcan® 6 ISAF*

CABOT GODFREY L. CABOT, INC., BOSTON

*Intermediate Super Abrasion Furnace Carbon Black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Cyanamid's Pigments Division
Offers a Red Pigment
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Whatever your requirements in red pigments, one of these efficient Cyanamid pigments can meet them:
LITHOLS and RED LAKE Cs . . . for low-cost color strength, brilliance, good working properties.
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NAPHTHOLS... for high color strength and brilliance, with outstanding resistance to acids, alkalis, soaps and chemical detergents.
CADMIUMS...for maximum stability and permanence.
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HERE'S A GOOD WAY TO GET
Non-Blooming Sulfurless Cures in Acrylonitrile Rubber

USE
A combination of Sharples Accelerators 52-9 and 62-9

RESULT
A Non-Blooming Compound with no Sacrifice in Physical Properties

ACCELERATOR	DEGREE OF BLOOM AFTER ONE MONTH
3 parts SA 52-9, TetraMETHYLthiuram DIsulfide	Heavy
4 parts SA 62-9, TetraETHYLthiuram DIsulfide	Slight to Heavy
Combination—2 parts SA 52-9 and 2 parts SA 62-9	None

Base Compound

Nitrile Rubber	100
Zinc Oxide	5
SRF Black	35
MT Black	65
Stearic Acid	1
Age Resistor	3
Softener	10
Accelerator as shown	

Tensile, aging, hardness and compression set were practically identical in the above compounds.

Detailed information is available on request.

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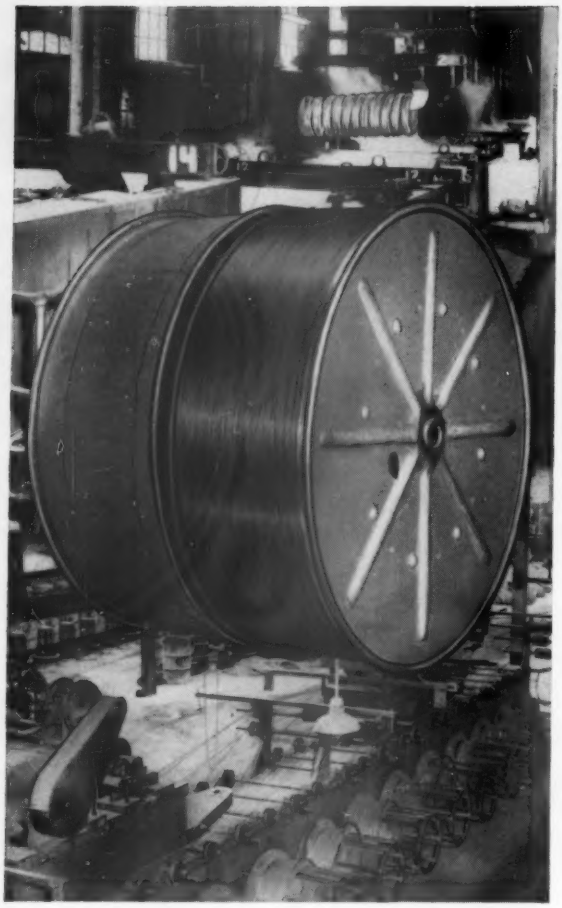


Inflation: a cockeyed economic condition that makes the prices you get look good and the prices you pay look awful.

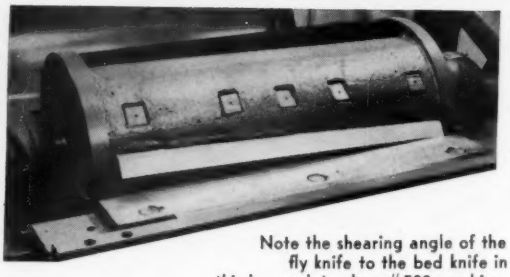
Inflation has affected the wire making business just as it has all other industries. But the upsurge in the cost of raw material, handling, labor and everything else along the line has been to us a challenge. Here at Johnson, through improved manufacturing, we have been able to meet inflation part way, with the result that Johnson High Carbon Wire, has advanced in price less than many other commodities that have zoomed since jet planes passed speed of sound, approached speed of gossip.

JOHNSON special bronze plated wire — standard for tire manufacturers and for vacuum and defroster hose producers. Advantages — uniformly clean finish . . . maximum adhesion to rubber . . . higher elongation . . . extra fatigue properties.

JOHNSON STEEL & WIRE CO., INC.
WORCESTER 1, MASS.
Akron, Ohio Los Angeles, Calif.
A SUBSIDIARY OF PITTSBURGH STEEL COMPANY

TAYLOR-STILES CUTTERS

SHEAR CUT RUBBER and PLASTIC STOCK



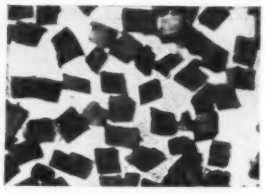
Note the shearing angle of the fly knife to the bed knife in this heavy duty class #500 machine.

All Taylor-Stiles Cutters

give a highly efficient shear cut.

Note the shearing angle of the fly knife to the bed knife in this heavy duty class #500 machine.

PELLETIZERS



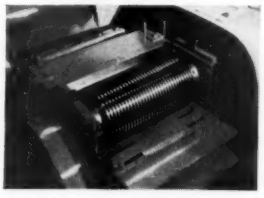
Various models are available for a variety of uses.

Accurate cutting, no longs or fines, in Taylor-Stiles cut plastics and rubber stock.

Knife discs cut stock into strips. Fly knife reduces them to pellets.

TANDEM CUTTERS

Two cutting units set at an angle to each other cut and cross cut sheet stock. (Used primarily for cellulose acetate and other hard stocks.)



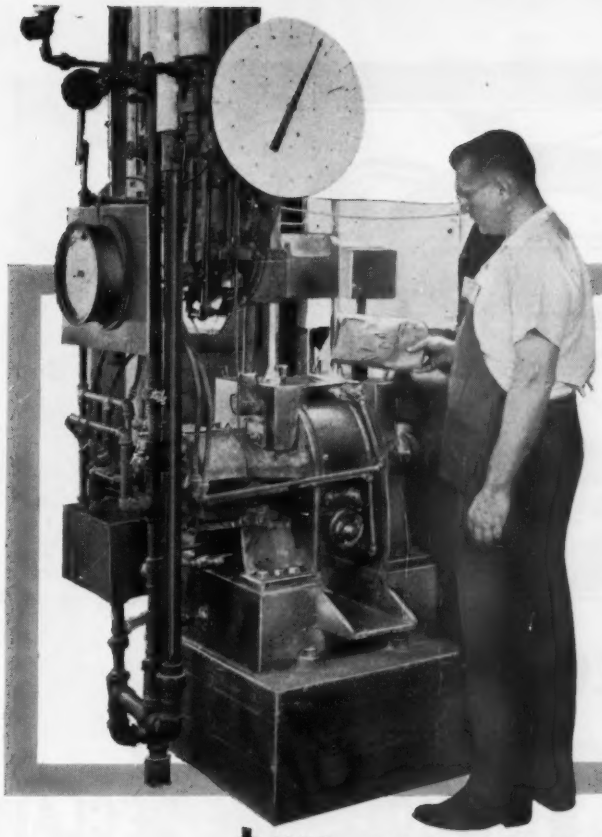
Still other machines cut strips for feeding to extruders and another type cuts extruded rods into pellets.

●

Write for full descriptions and advantages of these shear cutters. Sample cuttings will be made of your stock if you send us specifications of how you desire to have it cut.

TAYLOR-STILES
& COMPANY

216 Bridge Street, Riegelsville, New Jersey



need MORE mixing capacity?

...try PROTOX* zinc oxides

You mix faster, turn out more zinc masterbatches per day, with Protox oxides than with conventional oxides.

HERE ARE THE REASONS WHY:

1. *Protox oxides are up to 33% denser.*
In Banbury mixing, they drop to the bottom of the chamber where the rubber can best incorporate them.

2. *Protox oxides are wetted faster by all types of rubbers.*
The zinc propionate coating, exclusively on Protox oxides, enables rubber to displace air quickly from the particles.

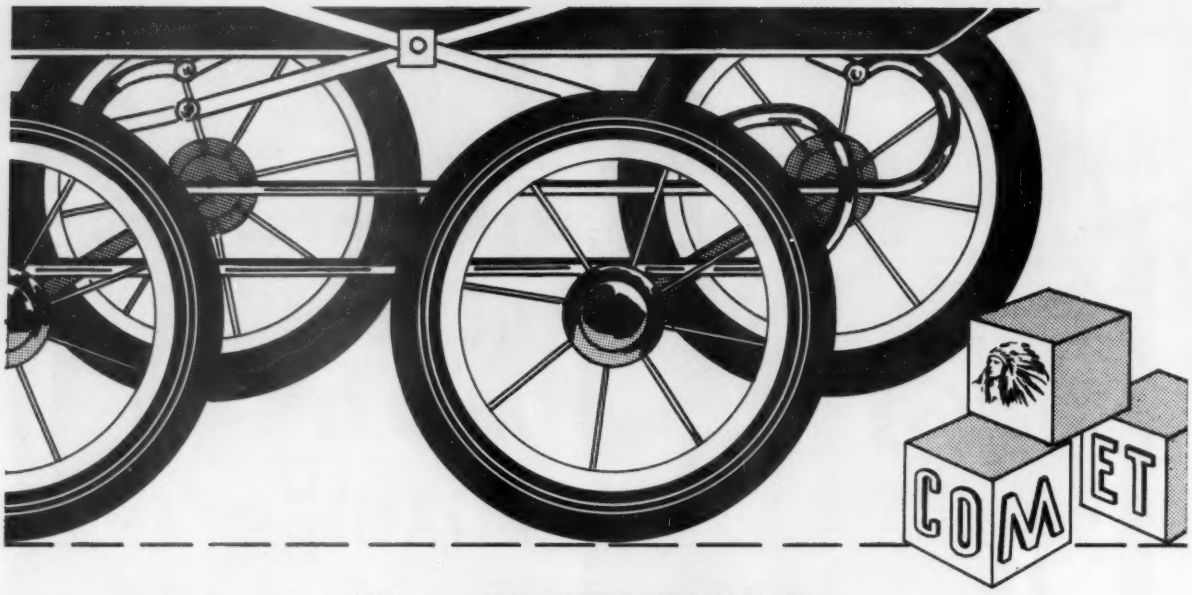
3. *Protox oxides disperse faster, more completely.*
Their coating definitely plasticizes the rubber, and increases the affinity of rubber for the particles.

How much can you increase your mixing capacity with Protox zinc oxides? Best way to find out is to take in a trial order now.

*U. S. Patents 2, 303, 329 and 2, 303, 330

THE NEW JERSEY ZINC COMPANY
Producers of Horse Head Zinc Pigments
... most used by rubber manufacturers since 1852
160 Front Street, New York 38, N. Y.

HORSE HEAD PRODUCTS



Use PEQUANOC

"COMET" WHOLE TIRE RECLAIM

for low priced, smooth extruding compounds, such as for

BABY CARRIAGE TIRES

Here is a typical formula, using COMET, which gives these desired characteristics.

FORMULA A-416-2

PEQUANOC COMET RECLAIM	**30.00**
#4 Smoked Sheets	
Flaked MR	7.00
Soft Clay	10.00
FEF Black	26.25
Stearic Acid	17.00
Zinc Oxide	.30
MBTS	.70
DOTG	.28
Antioxidant	.15
Aromatic Process Oil	.25
Sulfur	7.40
	.67
	100.00
Mooney Viscosity—1 min. warm up 4 min. @ 212° F.	66
Est. lb. Cost	$.0694
Sp. Gravity	1.42
Est. Vol. Cost	$.0985
Tensile	600#/sq. in.
Elongation	250%
Duro A	80

WRITE US TODAY
for a working sample of COMET.

Pequanoc Rubber Co.

MANUFACTURERS OF RECLAIMED RUBBER
MAIN SALES OFFICE and FACTORY: BUTLER, N. J.

Bloom PROBLEMS?

Stauffer CHEMICALS SINCE 1885

CRYSTEX 85% Insoluble Sulphur

CAN SOLVE THEM AND:

1. improve product quality and appearance

Crystex, because of its high insolubility in rubber, cannot migrate and "bloom" like ordinary sulphur in your rubber compounds. This assures better surface appearance, particularly important in white side-walls and other light colored consumer goods in which "yellow spots" would be objectionable.

By preventing bloom, Crystex improves the tack of built-up stocks such as tire carcasses, belting, and valve patch frictions, thereby guaranteeing good adhesion after vulcanization.

2. save on plant operation costs

A stock blended with Crystex can be kept for long periods before vulcanization without the danger of blooming. Mixing and vulcanization schedules can be made more flexible to permit maximum utilization of machinery and labor without the worry of a "time element" imposed by the danger of bloom.

3. increase compounding flexibility

Formulating with Crystex will allow variations to be made in factory recipes that tend to be "scorchy"; its use will control the degree of tackiness of factory stocks. The unusual characteristic of being insoluble in "anything and everything" except more sulphur may suggest additional uses in your formulations.

Enthusiastic acceptance of Stauffer CRYSTEX by the rubber industry has necessitated the construction of a new plant, and CRYSTEX is now produced at both Chauncey, N.Y., and Monongahela, Pa. Packed in 50-pound multiwall paper bags, Stauffer CRYSTEX is available in all quantities up to car-load.

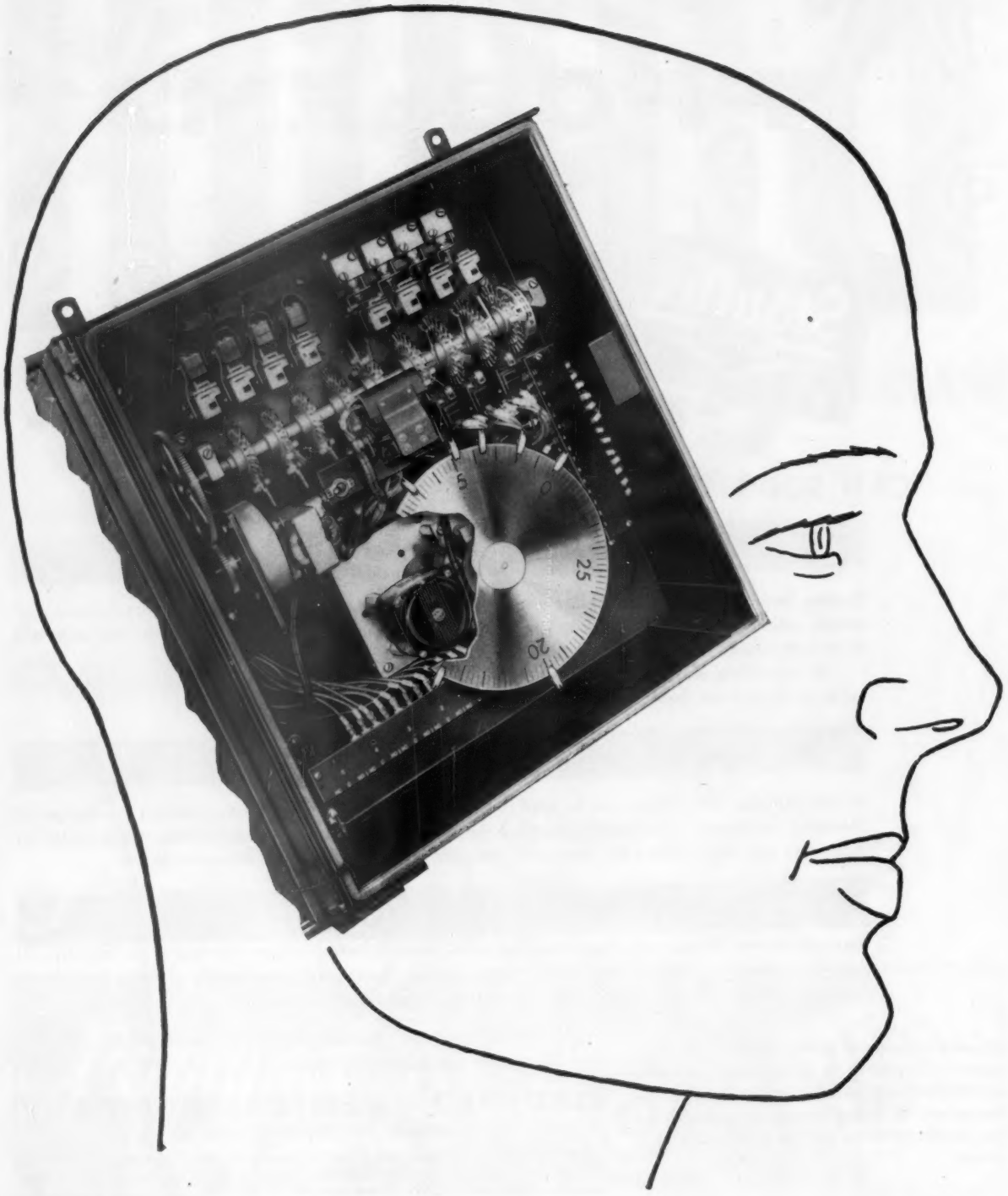
Write for experimental samples or further information on the properties and uses of CRYSTEX.

STAUFFER CHEMICAL COMPANY

380 MADISON AVENUE, NEW YORK 17, N. Y.

221 N. LaSalle St., Chicago 1, Ill. • 636 California St., San Francisco 8, California
326 S. Main Street, Akron 8, Ohio • 824 Wilshire Boulevard, Los Angeles 14, Calif. • 8901 Hempstead Road, Houston 8, Texas • North Portland, Ore. • Weslaco, Texas • Apopka, Fla.

TAYLOR ANNOUNCES A



NEW "ROBOT BRAIN"!

*The new Taylor Flex-O-Timer**

TIMED PROGRAM CONTROLLER

DESIGNED primarily for application to automatic presses used in the rubber industry, the FLEX-O-TIMER Timed Program Controller gives greater than ever precision to the timing and coordination of automatic tire vulcanizers where simple and precise settings are required. Settings can be readily changed to accommodate different tire sizes, to switch from nylon to rayon cord, or for variations in compounding. It will actuate switches, turn valves and perform many other operations involving temperature, pressure, mechanical motion, electrical energy or any combinations of these . . . and perform each function in exactly the same way time after time. Handles automatically from one to eight electrically or pneumatically operated functions.

INCREASED SETUP SPEED

The greatest advantage of this new instrument is that it makes possible direct time settings, for greater accuracy, speed and convenience. Program trip pins are manually positioned to the exact time at which a function is to be operated . . . these settings are duplicated in the step mechanism by means of latch trip pins set into corresponding notches. Result — no operator computations necessary, precision of settings.

MANY PLUS VALUES

1. Time dial automatically resets to zero in maximum of 13 seconds on completion of cycle.

2. Time cycle from 3 minutes to 4 hours available.

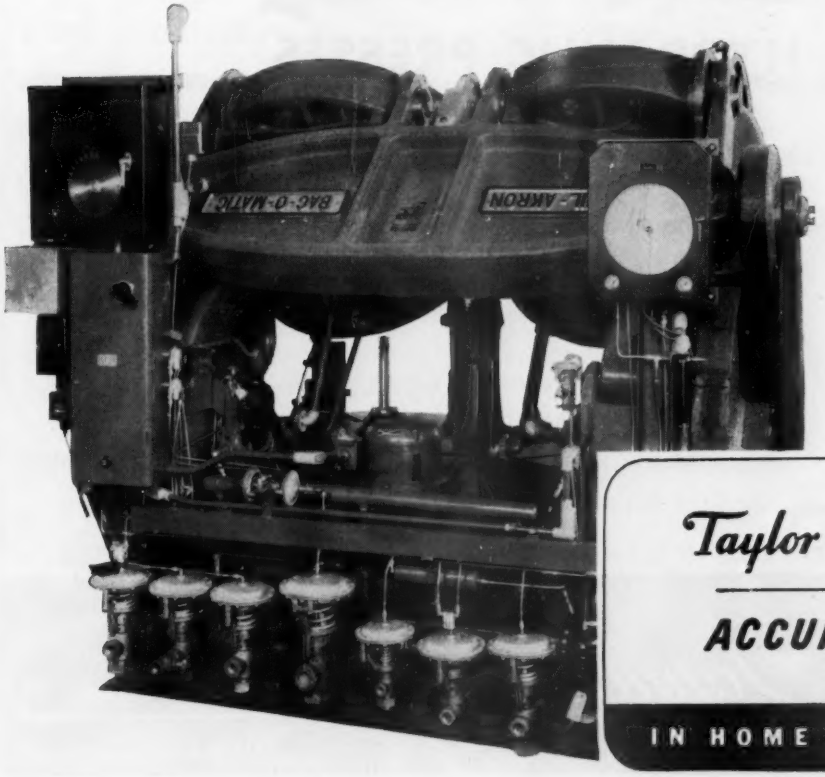
3. Minimum time between program trip pins—7½ seconds on 30 minute cycle dial.

4. Step disc provides 20 positions for mounting "off" or "on" cams to actuate up to 8 pneumatic or electric latch operated functions.

5. Duration of an operation may be timed to a minimum of 1½ seconds.

6. All zero-start position functions actuated within 1½ seconds from time start.

Ask your Taylor Field Engineer for full information about this new instrument, or write for **Catalog 98350.** Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada.

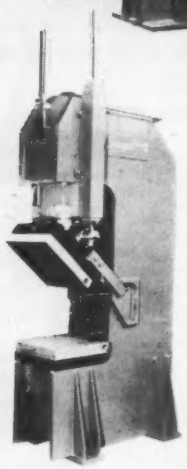


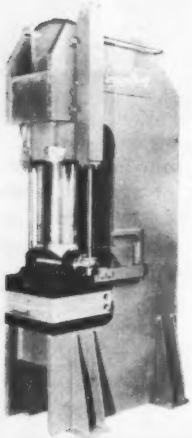
Back view of Bag-O-Matic press showing new FLEX-O-TIMER Timed Program Controller (left), FULSCOPE Controller (right).*

*Reg. U.S. Pat. Off.

Taylor Instruments
MEAN
ACCURACY FIRST
IN HOME AND INDUSTRY

Battery of specially designed presses for mass production.





Tilting-head hydraulic press offers operator easy access and quicker operation.

Siempelkamp

HYDRAULIC PRESSES

Some 36,000 square yards of factory space within a total area of 240,000 square yards is available for production work on the most modern hydraulic vulcanizing presses.

Write for quotations on your next job.

All points outside U.S.A. send inquiries direct to:

G. SIEMPELKAMP & CO., KREFELD, WEST GERMANY
(Established 1883)

Telex 0853 811 Cable: Siempelkampco

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William Tapper

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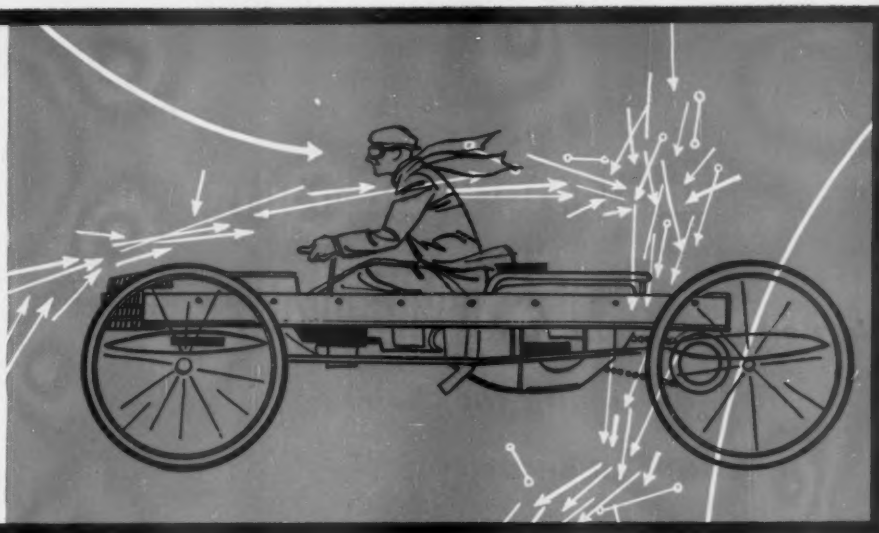
Yonkers, New York

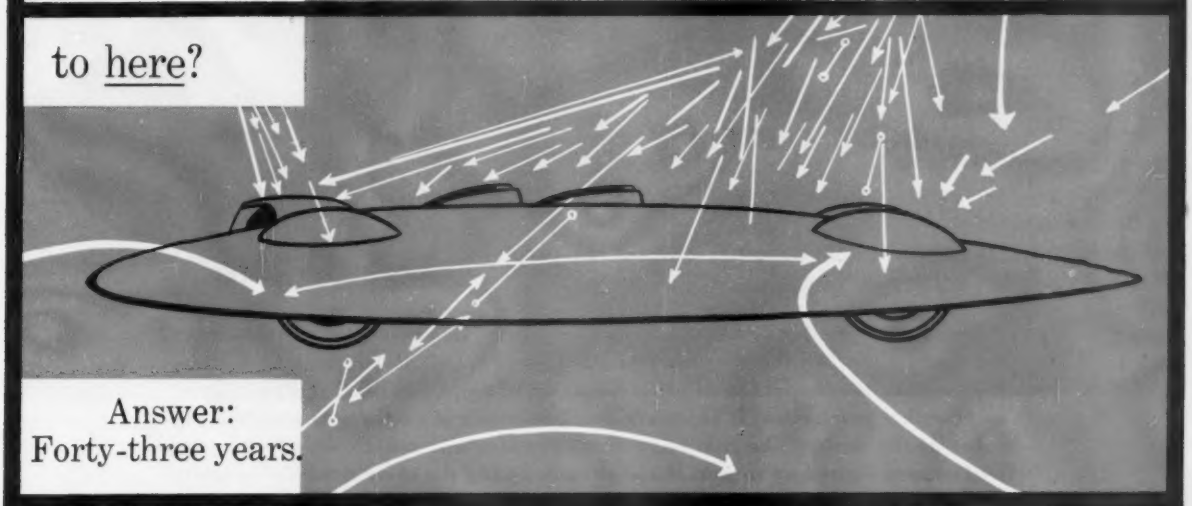
Phone: Yonkers 3-7455

Cable: Wiltapper

How long did it take to get from here



to here?



Answer:
Forty-three years.

From the perky, wire-wheeled Stevens-Duryea Skeleton which whizzed around the track at Dayton, to the low-slung, torpedo-shaped Railton of John Cobb, there is an entire history of automobile development.

Partner in this development is Monsanto with its group of rubber chemicals, which have done—and are still doing—so much to improve tires and other rubber products.

One of these products is Monsanto's Insoluble Sulfur 60, which offers an economical and convenient way to use insoluble sulfur when such is indicated in the compound.

For more information on this and other products, write today for your copy of new catalog "Chemicals for the Rubber Industry," to MONSANTO CHEMICAL COMPANY, Rubber Service Department, 920 Brown Street, Akron 11, Ohio.

MONSANTO
CHEMICALS — PLASTICS

SERVING INDUSTRY...
WHICH SERVES MANKIND

MONSANTO CHEMICALS FOR THE RUBBER INDUSTRY

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Flectol* H
Santoflex* B
Santoflex BX
Santoflex 35
Santoflex AW
Santowhite* Crystals
Santowhite MK
Santowhite L
Santowhite Powder

ALDEHYDE AMINE ACCELERATORS
A-32
A-100

MERCAPTO ACCELERATORS
Santocure*
Bi-Sixty*
Mertax (Purified Thiotax)
Thiotax (2-Mercapto benzothiazole)
Thiofide* (2,2' dithio-bis benzothiazole)

GUANIDINE ACCELERATORS
Diphenylguanidine (D.P.G.)
Guanitol*

ULTRA ACCELERATORS FOR LATEX, ETC.
R-2 Crystals
RZ-50
RZ-50-B
Pip-Pip
Thiurad* (Tetramethyl-thiuram disulfide)
Ethyl Thiurad (Tetraethyl-thiuram disulfide)
Mono Thiurad (Tetramethyl-thiuram monosulfide)
Methasan* (Zinc salt of dimethyl dithiocarbamic acid)
Ethasan* (Zinc salt of diethyl dithiocarbamic acid)
Butasan* (Zinc salt of dibutyl dithiocarbamic acid)

PLASTICIZERS
DOP
Dibutyl Phthalate
Tricresyl Phosphate
Dioctyl Adipate
Santicizer* Plasticizers

SPECIAL MATERIALS
Thiocarbanilide ("A-1")
Santovar*-A
Santovar-O
Sulfasan R
Insoluble Sulfur "60"

COLORS

RESODORANTS *Reg. U. S. Pat. Off.

"7,125 men and women signed up to join those already saving for their financial security..."

GEORGE H. COPPERS

President,
National Biscuit Company

"There is no greater honor than partnership in an enterprise as important to a nation as the Payroll Savings Plan for United States Savings Bonds. We view our recent person-to-person canvass of employees in behalf of Bonds as practical patriotism. It supports our Government's efforts to stabilize the value of the dollar. The campaign also benefited our employees. 7,125 men and women signed up to join those already saving for their financial security in this easy, automatic way."

The Payroll Savings Plan is the backbone of Series E Bond Sales. 8,500,000 employees in more than 45,000 companies invest more than $160,000,000 in Savings Bonds *every* month.

The person-to-person canvass is the keystone of The Payroll Savings Plan. In company after company person-to-person canvasses *conducted* by *employees* have increased participation to 60%, 70%—even 90% plus.

Why don't *you* conduct a person-to-person canvass in *your* company? Here are two, simple steps:

- Tell the Savings Bond Division, U.S. Treasury Department, Washington, D.C., you want to conduct a person-to-person canvass, they will show you how easy it is to install the plan.

- Over *your* signature tell your men and women you are 100% behind the Payroll Savings Plan because it enables them to build personal security . . . it is a check on inflation and helps to stabilize the dollar . . . it has set up a reservoir of reserve purchasing power—over $37.5 billion—the cash value of Savings Bonds held by individuals at the end of July, 1954. The greatest reserve of purchasing power this or any other country has ever had.

Your phone call, telegram or letter to Savings Bond Division, U.S. Treasury Department, Washington 25, D.C., will bring prompt co-operation from your State Savings Bond Director. Act today.

The United States Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and

RUBBER AGE

Solving your Carbon Black problems

in WITCO-CONTINENTAL Laboratories

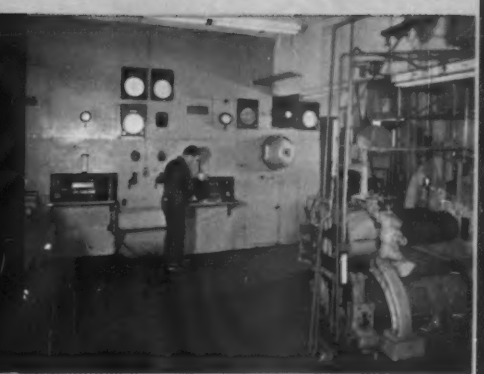
Modern in every detail, the WITCO-CONTINENTAL Carbon Black Laboratory is at 1400 W. 10th Ave., Amarillo, Texas.

Our aim is always to assist you

WITCO-CONTINENTAL'S Carbon Black Laboratory is devoted expressly to help you solve your carbon black problems through technical service and research. Our experienced staff utilizes the most modern methods and equipment to improve your product by finding more efficient rubber formulations.

Banbury mixer with internal temperature recorder assures homogeneous blending of every ingredient in each rubber batch under test.

Constant temperature-humidity test room contains Scott tensile strength testers. Center unit tests tensile at elevated temperatures.



Rubber mill room holds rubber mill, steam vulcanizer, exact temperature curing presses, full instrumentation for completely accurate test results.

For the complete line of Witco-Continental Rubber Blacks

Witco-Continental **CARBON BLACKS**

Recognized *for over twenty-five years* as dependable
Carbon Blacks for rubber products of superior quality.

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Continental® AA—Easy Processing (EPC)—Witco No. 12
Continental A—Medium Processing (MPC)—Witco No. 1
Continental F—Hard Processing (HPC)—Witco No. 6
Continental R-40—Conducting (CC)

Furnace Blacks

Continex® SRF—Natural Gas Type, Semi-Reinforcing
Continex SRF-NS—Natural Gas Type, Non-Staining
Continex HMF—Natural Gas Type, High Modulus
Continex HAF—Oil Type, High Abrasion
Continex FEF—Oil Type, Fast Extruding
Continex SAF—Oil Type, Super Abrasion

Witco-Continental's technical service staff will be glad to assist you
with your rubber formulation problems.

WITCO

WITCO CHEMICAL COMPANY

CONTINENTAL CARBON COMPANY

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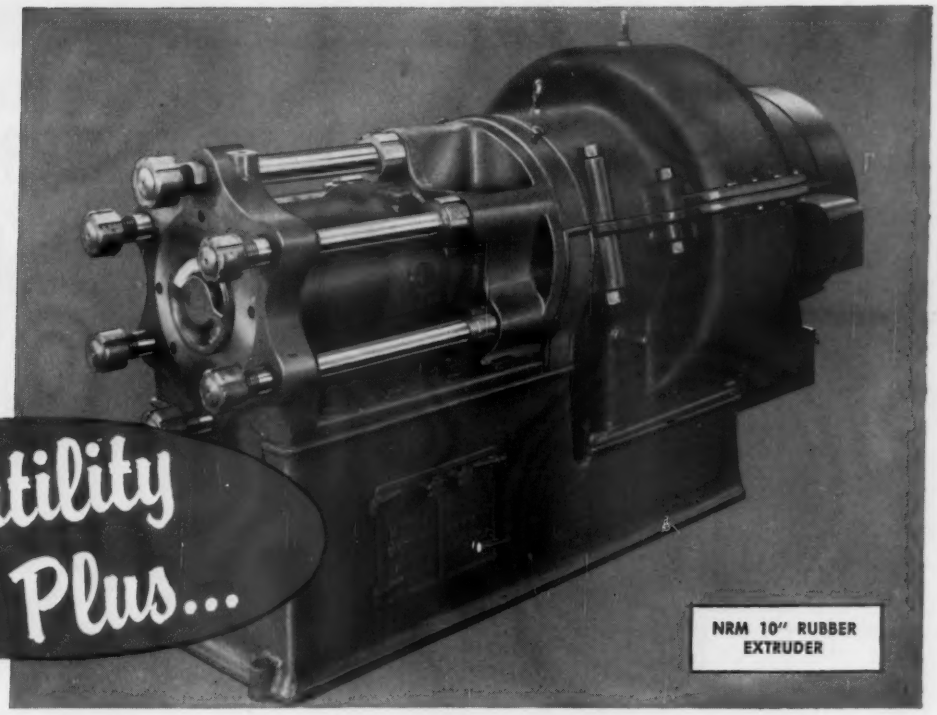
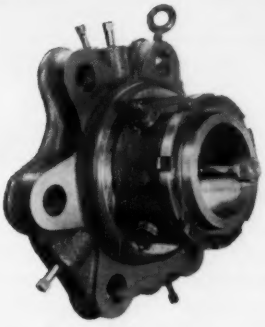


Versatility Plus...

NRM 10" RUBBER EXTRUDER

• LOW INITIAL COST • LOW MAINTENANCE • HIGH PRODUCTION



TUBING HEAD WITH WATER-COOLED 4-ARM SPIDER AND MANDREL

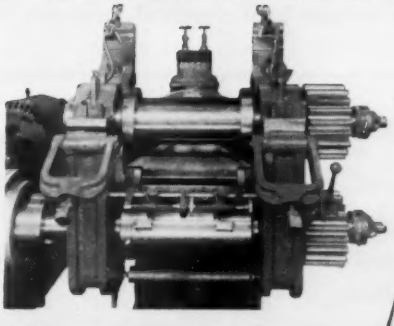
MAKES NRM

YOUR BEST BUY IN

RUBBER EXTRUDERS

The 10" tuber shown here is one of a full line of Extruders NRM makes available to the rubber industry, in sizes from 1½" to 20". Practical engineering, high quality of materials and rugged construction have made it — and all NRM Extruders — the industry's "standard" for low cost operation and long productive life.

Five different NRM Die Heads, including the two shown here, are available to increase the versatility of NRM Extruders by making possible tube, tread or slab extrusion with a single machine. Write for detailed information TODAY. Read the facts on the NRM line and make *your* next tuber an NRM.



ROLL FORM HEAD — showing ease of removing rolls for changing tread contours.

WRITE FOR DETAILED INFORMATION ON NRM RUBBER EXTRUDERS AND DIE HEADS TODAY

NATIONAL RUBBER MACHINERY CO.

General Offices & Engineering Laboratories: 47 West Exchange St., Akron, Ohio
East: 384 Getty Ave., Clifton, N. J.
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2322

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VELSICOL

RUBBER PROCESSING HYDROCARBON

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Available in Varied Melting Point Ranges

- Compatible with natural and synthetic rubbers.
- Effective plasticizers and softeners.
- Improve milling, calendering and tubing characteristics.
- Promote excellent physical properties.
- Excellent dispersing agents for fillers and pigments.
- Possess high electrical resistance properties.

SOME SUGGESTED APPLICATIONS

MECHANICAL GOODS
RUBBER SOLES AND HEELS
RUBBER FLOOR TILING
TUBULAR COMPOUNDS
MOLDED RUBBER PRODUCTS
ELECTRICAL INSULATION COMPOUNDS
RUBBER ADHESIVES AND CEMENTS
RECLAIMED RUBBER SHEETING
GASKETS AND JAR RINGS
COLORED RUBBER STOCKS
HARD RUBBER COMPOUNDS
BATTERY CASES

FOR COMPLETE INFORMATION WRITE DEPT. HS

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REPRESENTATIVES IN PRINCIPAL CITIES

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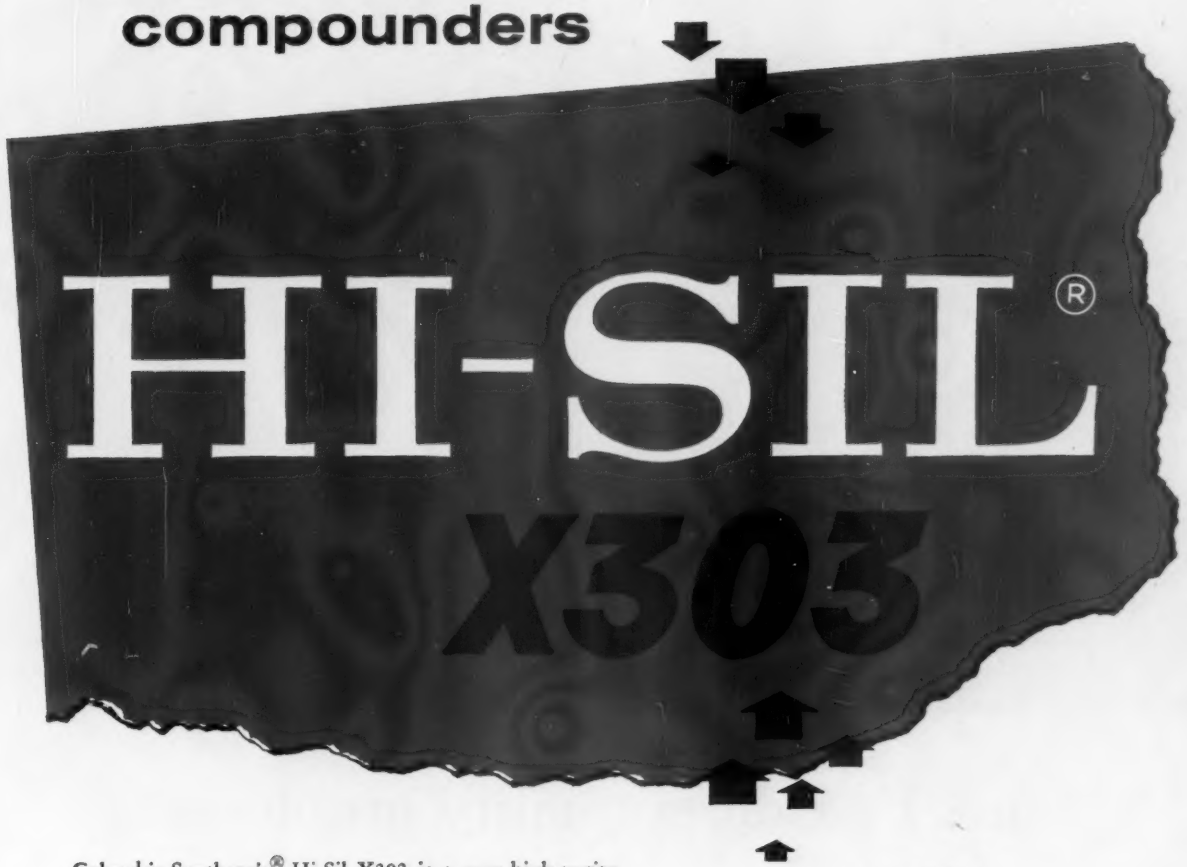
good news for silicone rubber compounders



Columbia-Southern's® Hi-Sil X303 is a new high-purity silica developed especially for silicone rubber compounding. It provides a good level of physical properties and easy processing characteristics.

One of the outstanding contributions by Hi-Sil X303 to the silicone field is extremely low water absorption in finished stocks as compared with other commonly used silica materials.

Now available in limited amounts, the consistently high quality of Hi-Sil X303 enables users to improve techniques and performance in the growing field of elastomer development. Hi-Sil X303 has also proved of value in certain plastic applications, adhesives, paint, varnish and lacquers, inks and pharmaceuticals.

A general data sheet has just been issued and it is available upon request along with experimental working samples. Contact Rubber Pigments Section, Columbia-Southern Chemical Corporation, One Gateway Center, Pittsburgh 22, Pa.

TYPICAL PROPERTIES

Specific gravity	1.95
Average particle size	0.022 microns
Surface Area	160 square meters/gram
Color	White
pH in 5% water suspension	4.5
Ignition loss	10%
SiO_2	88%
NaCl	0.04%
Na_2SO_4	0.10%

COLUMBIA-SOUTHERN CHEMICAL CORPORATION

SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY

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Sunk by rubber quality problems?

Skellysolve for Rubber and Related Industries

SKELLYSOLVE-B. For making quick-setting cements for the shoe, tape, container, tire and other industries. Quick-drying, with no foreign taste or odor in dried compound.

SKELLYSOLVE-C. For making quick-setting cements with a somewhat slower drying rate than those compounded with Skellysolve-B.

SKELLYSOLVE-D. For cements and variety of manufacturing operations. Good odor. Quick drying. Minimum of heavy, greasy compounds.

SKELLYSOLVE-H. For general use in manufacturing operations and cements, where faster evaporation rate than that of Skellysolve-D is desired.

SKELLYSOLVE-E. For use wherever a relatively slow drying solvent is desired.

SKELLYSOLVE-R. For general use in tire building and a variety of other manufacturing operations and cements. Reduces evaporation losses. Medium quick final dry. Lessens bloating and skinning tendency.

"Doc" MacGEE says: If you can't afford to take chances on the quality of *your* rubber product—don't risk using unknown solvents in your manufacturing processes. You're *certain* of getting all the solvent characteristics you need when you specify Skellysolve. It's made to protect your product and your production lines.

Uniformity is always assured when your solvent is Skellysolve. No batch-to-batch variations that might "raise Cain" with your plant operations. Strict quality control at Skellysolve helps guard the quality of your product and its sales appeal.

Specifically, Skellysolve is 100% dependable for low end points, controlled evaporation, low vapor pressure, a minimum of unsaturates and pyrogenic decomposition products. Minimum levels of low and high boiling compounds help reduce rejects caused by blushing and blisters.

Controlled vapor pressure reduces danger of bloated containers, and a minimum of low boiling compounds means freedom from seeds in rubber cements. And absence of greasy residues pays off in higher bonding strength for rubber cements.

Technical facts in complete detail are yours for the asking. Write today. And for special help on solvent application problems, consult with the Skellysolve Technical Fieldman. No obligation.

SKELLY

Skellysolve

SOLVENTS DIVISION, SKELLY OIL COMPANY
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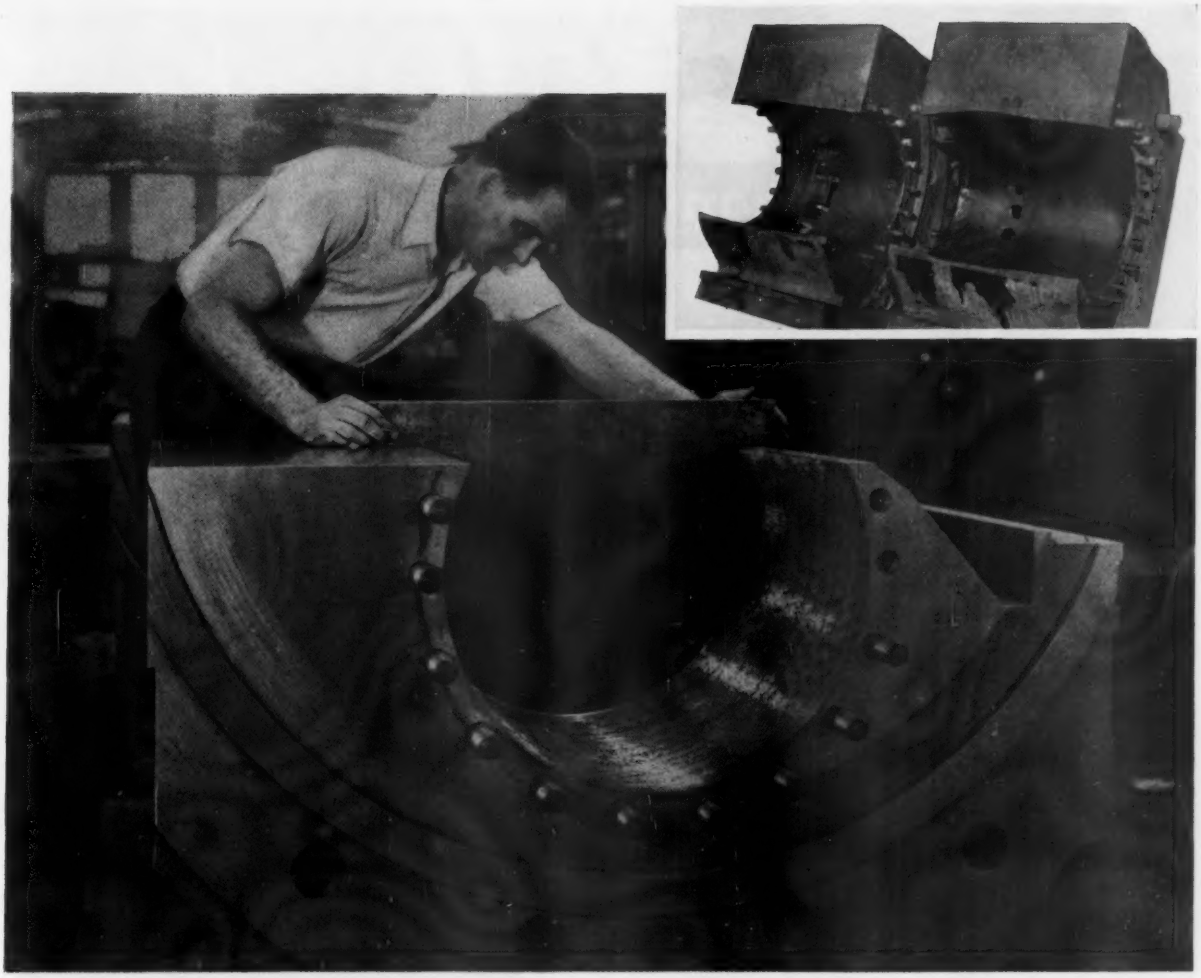

making sure rebuilt Banbury* sides are "good as new"

In the Banbury side above, a new wear-resistant liner is receiving a final gauging after having been welded in place and ground to exact size. Fitting liners of special alloy is the latest F-B method for rebuilding badly worn Banbury sides.

Where wear or damage is not great, the bore of the liner is built up with hard-surfacing metal, then machined and ground to accurate dimensions. In either case, the rebuilt side, when completed, is as *good as new,* and will carry the same guarantee.

In rebuilding any part of a Banbury mixer, there is no substitute for the experience and facilities at Farrel-Birmingham. This company has the original drawings from which your Banbury was made; the knowledge of all improvements that have been developed, which may be advantageously applied to the repair job; and the jigs, fixtures, gauges and other special equipment required to do the job best.

To make sure you get good-as-new Banbury rebuilding write, wire, or telephone one of the offices listed below.

FARREL-BIRMINGHAM COMPANY, INC.
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If you need low-cost...
Plastolein 9055 DGP is a low cost, *low-temperature, secondary* plasticizer which provides high efficiency, good all-around performance and excellent chemical stability.

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Though the 1955-56 issue of the RUBBER RED BOOK will not close until next April, it is not too early to give consideration to the use of space in that issue and to include the necessary amount in your 1955 budget.

The Editors are planning an even larger and more comprehensive 1955-56 RUBBER RED BOOK. Each issue has been more complete than the previous one — has had more pages, more rubber companies and suppliers, more new listings, new sections, improved and expanded sections, new information added. Yes, every new edition is more complete and more useful . . . and users mince no words in telling us so!

The constant improvement in the RUBBER RED BOOK is the key to its solid acceptance by the rubber industry. Add to that the fact that **each advertisement remains effective for two full years** and you have the unbeatable combination of effectiveness and economy! Small wonder that some suppliers use up to 20 pages of advertising to get across every detail of their story.

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Hundreds of letters are on file attesting to the worth of the RUBBER RED BOOK. Users stress its **practical value** . . the evident **thoroughness** with which each section has been developed . . the intimate **knowledge** of the rubber industry that is so apparent . . the infinite **detail** and wide **variety** of its contents.

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Tenth Issue — 1955-56 Edition

Closing Date for Copy — April 1, 1955

Publication Date — June, 1955

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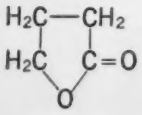
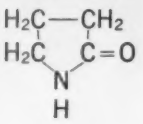
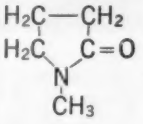
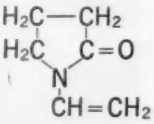
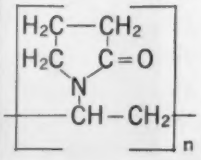
1,4-BUTANE-DIOL $HOCH_2CH_2CH_2CH_2OH$	Reacts as dihydric alcohol. Chemical intermediate for polyesters, polyurethanes, polyamides and cyclic compounds. For use in plasticizers, resins, fibers. Solvent. Humectant.
BUTYRO-LACTONE 	Powerful organic solvent for polyacrylonitrile, cellulose acetate, polystyrene, etc. Selective solvent for acetylene in natural gas. Chemical intermediate for aliphatic and cyclic compounds.
2-PYRROLIDONE 	Polymerizes to high molecular weight, linear, nylon-type, polyamide condensation product. Gives γ-aminobutyric acid and derivatives, also N-acyl lactams.
N-METHYL-2-PYRROLIDONE 	Powerful organic solvent for acrylonitrile polymers and copolymers, cellulose triacetate, etc. Selective solvent for acetylene in natural gas. Spinning agent for polyvinyl chloride solution.
N-VINYL-2-PYRROLIDONE 	Will copolymerize with almost all vinyl monomers. Permits modification of many properties in existing homopolymers. Gives control of hydrophobic and hydrophilic properties of products.
POLYVINYL-PYRROLIDONE (PVP) 	Binder, stabilizer, detoxifier, protective colloid, thickener, film former. Physiologically compatible. Wide solubility range. For use in pharmaceuticals, cosmetics, foods, detergents, dye stripping, synthetic fiber additive, size component, lithography, agricultural chemicals, etc.

Until the new plant at Calvert City, Kentucky, is completed, these products are available in quantities up to tank cars from the GAF pilot plant and semi-works at Linden, N. J.

For technical information, price schedules and samples write to:

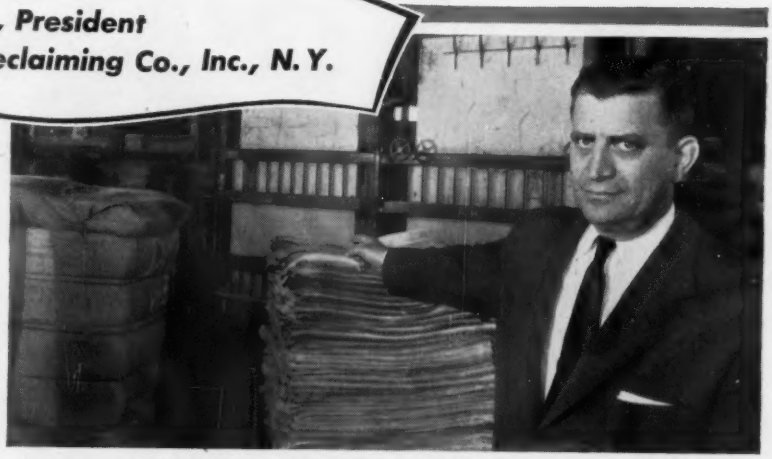
GENERAL ANILINE & FILM CORPORATION
COMMERCIAL DEVELOPMENT DEPARTMENT
435 HUDSON STREET, NEW YORK 14, N.Y.

gaf

From Research to Reality

"Today's tire manufacturers are using bonding agents* that literally *weld* the cords to the rubber"

says C. H. Peterson, President
U. S. Rubber Reclaiming Co., Inc., N. Y.



Mr. Peterson standing in front of the massive reclaiming equipment at the U. S. Rubber Reclaiming Co., Inc., plant in Cheektowaga, New York. At the left is a bale of reclaimed tire fabric, and at the right a pallet load of reclaimed rubber.

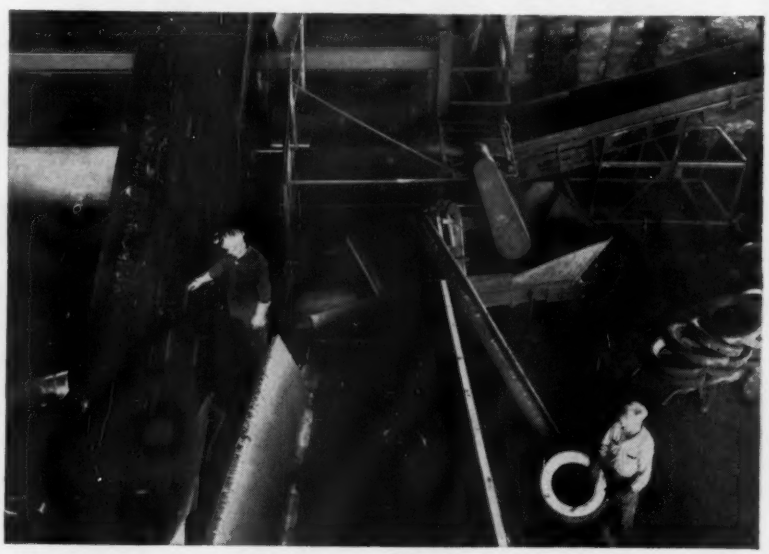
"THIS positive bonding has caused us one headache after another," adds Mr. Peterson. "The *better* the bond between the rubber and the tire fabric, the *tougher* our job becomes."

U.S. Rubber Reclaiming Co., Inc., has been forced to redesign its separation system time and again to cope with the constantly improved tires. Better grinding equipment has had to be developed to tear the stubborn fabric from the rubber. The power of the grinders, which was originally 150 h.p., has been increased steadily until it is now up to 450 h.p.

Although a "headache" to the U.S. Rubber Reclaiming Co., Inc., the toughness of today's tires is a definite advantage to the motorist.

* A good deal of the credit for permanent rubber-fiber bonds in tires can be claimed by Koppers Resorcinol. Resins made from resorcinol form an excellent bond—one that will take repeated pounding and wear, will withstand prolonged flexure under grueling service conditions without separating. Because of their superb adhesive properties, resins made from Koppers Resorcinol have also found wide application in the manufacture of industrial belting, hose, and many other heavy-duty rubber products where a powerful, lasting bond is needed between reinforcing fibers and synthetic or natural rubber.

For further information, write to:



The rolling mill, commonly known as the "cracker." These powerful rolls actually tear the tires to pieces.

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CHEMICAL DIVISION, DEPT. RA-104 **PITTSBURGH 19, PENNSYLVANIA**

KOPPERS ® **Koppers Resorcinol**

SALES OFFICES: NEW YORK · BOSTON · PHILADELPHIA
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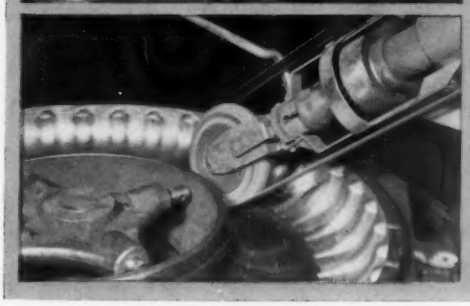
SKILLED WORK
BY
SKILLED CRAFTSMEN
Assures
PERFECT
FINAL
FINISH
OF

BRIDGWATER TIRE MOLDS



No pains are spared to obtain perfection in every detail of "finishing" a Bridgwater Tire Mold. Expert craftsmen working with specialized tools painstakingly develop the precise tread definitions and mirror-smooth cavity surfaces which are so vital to the production of *quality* automotive tires.

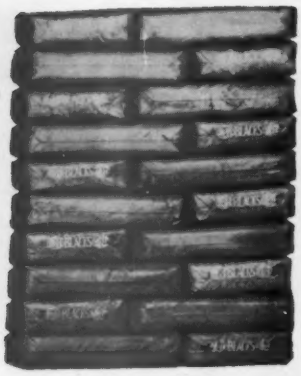
Yet you pay no penalty in either delivery time or cost to protect the quality of *your* automotive tires by producing them in Bridgwater Molds. Specialization of both skills and equipment at our tire mold plant, the Athens Machine Division, enables us to meet the Tire Industry's requirements for highest quality molds of any type, size or material, *quickly*— and at decidedly favorable cost.

Athens Machine Division

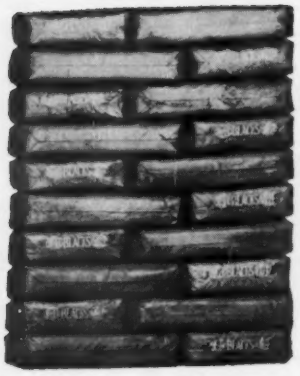
BRIDGWATER
MACHINE COMPANY
Akron, Ohio

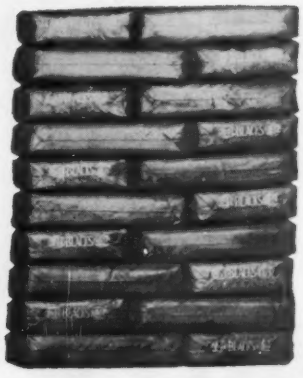
Bridgwater Machine Company (Canada), Ltd.
Brantford, Ontario

1942



Super Abrasion Furnace Black





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AROMEX 125

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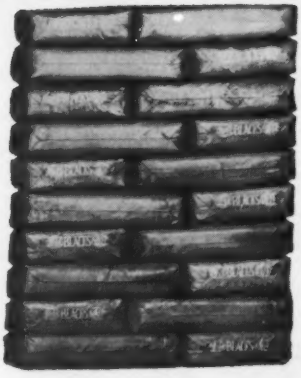

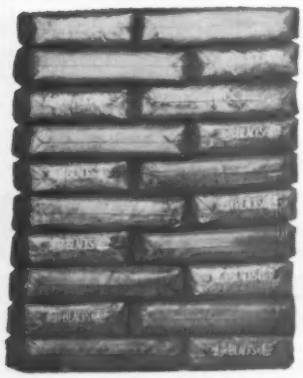

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One of the World's Outstanding Rubber Journals

VOLUME 76
NUMBER 1

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An index to Volume 75 of RUBBER AGE will be found on Pages 157 to 160 of this issue.

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* Appears every other month

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Published on the 15th of each month by

PALMERTON PUBLISHING COMPANY, INC.

Printing Office,
East Stroudsburg, Pa.

Editorial and Advertising Offices,
250 West 57th St., New York 19, N. Y.

New England Representative—F. ROYAL CAREY, P.O. Box 133, Providence, R.I.

Midwestern Representative—LARRY M. LYONS, 549 West Washington St., Chicago 6, Ill. Phone: Central 6-0545.

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Entered as Second Class Matter, October 20, 1933, at the Post Office at East Stroudsburg, Pa., under Act of March 3, 1879. Subscription Rates: Domestic, $5.00 a year; Canada, $5.50; Foreign, $6.00. Single copies up to 3 months old, 50 cents; over 3 months old, 75 cents. Telephones: COlumbus 5-2923, 5-2924.

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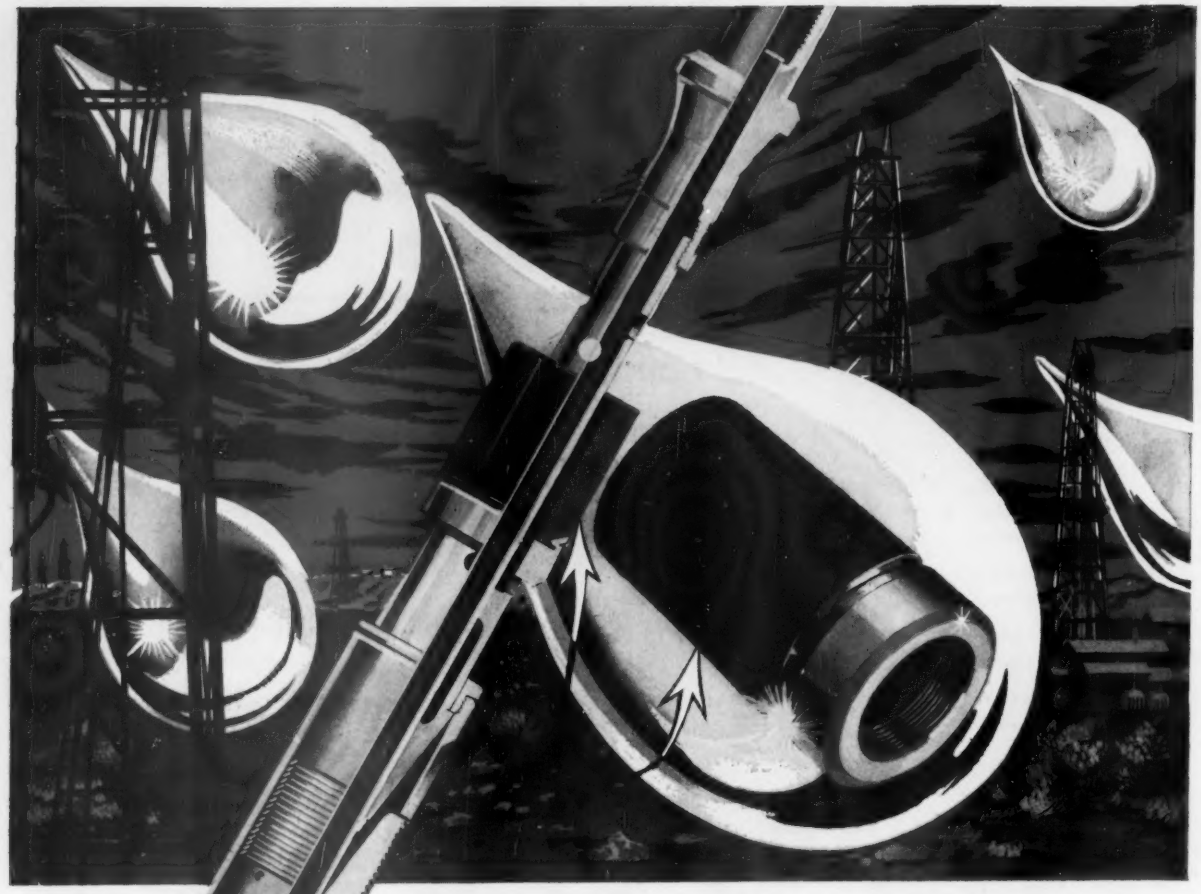

When oil resistance is a *must* ... it's *Paracril!*

Nothing demands oil resistance like the actual equipment used in drilling for oil.

That's why you'll find **Paracril® chemical rubber** as the packing element in these reliable heavy-duty packers that work right in the oil well shaft.

The thick-walled Paracril gasket readily packs off with but small longitudinal compression. Yet it withstands pressure as high as **6000 lbs.**—at temperatures up to **300°F.—with absolutely no leakage or failure!**

Little wonder more and more of those who know oil are getting to know and specify **Paracril** for outstanding oil resistance.

This unique chemical rubber is available in three general grades of oil resistance to meet practically any requirements. And with its great flexibility, tensile strength, and resistance to abrasion and high and low temperatures, it may be used to advantage wherever a rubberlike material is needed. Paracril may also be blended with other rubbers or plastic resins to impart special desirable properties.

If you're not already familiar with the many benefits Paracril offers you, simply write on your letterhead to the address below.

Note: Naugatuck Chemical makes and supplies Paracril only, not the oil well packer shown. This is produced by Oil Center Tool Co., Houston, Texas.

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Division of United States Rubber Company

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RUBBER AGE

Vol. 76, No. 1 OCTOBER, 1954

Observations and Reflections on the European Rubber Manufacturing Industry

By M. E. LERNER
Editor, RUBBER AGE

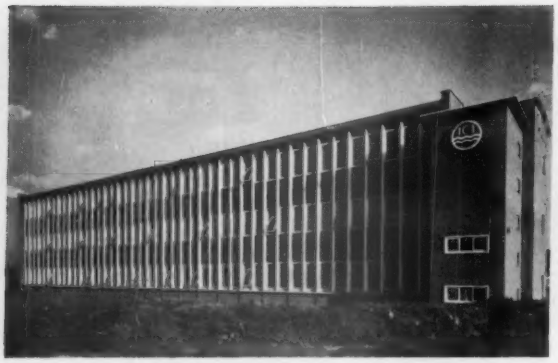
AS Mark Twain once said: "I am glad the American goes abroad. It does him good. It makes a better man of him. Contact with men of various nations teaches him that there are other people in the world . . . and other opinions as worthy of attention and respect as his own." After having spent some nine weeks in Europe and on the Continent, your editor is in complete accord with these penetrating remarks although he by no means puts himself into the category of a Samuel Clemens. For a comprehensive appreciation of the rubber manufacturing industry in Europe, there is nothing quite as satisfactory as personal contacts and I urge every one of my readers to make a visit to Europe if time and circumstances permit.

The rubber manufacturing industry in Europe is made up of hundreds of small, medium and large concerns producing every known variety of rubber product. It obviously would be impossible for any one individual to contact all of these manufacturers in a 9-week period or in a 9-year period and it was, of course, necessary for me to confine my visits to only a relative handful of companies in each country. I did manage to visit eight separate countries and my visits covered not only rubber manufacturing plants, but also the many rubber laboratories devoted to rubber research which are scattered throughout Europe and machinery and chemical plants which service the rubber field.

When it was decided to discuss my various visits in Europe in print, we considered several methods of approach. For example, we first considered presenting my findings in specifics such as developments in the tire field, the footwear field, the mechanical goods field, etc. Because so many of the European rubber manufacturers produce a wide variety of rubber goods in single plants, it was finally decided to present these reports in more or less chronological order and it is our hope that the reader may be able to pick out items of specific interest in his own field of work.

Visits in England

The major reason for my trip to England and the Continent was to enable me to attend the Third Rubber Technology Conference which was held in London the week of June 21 under the auspices of the Institution of the Rubber Industry. A full report of this most successful international conference appeared in our July, 1954 issue. Prior to the conference, I visited some plants in the London area and subsequently made a 750 mile automobile tour of England. A tour of this type quickly convinces one why tire manufacturers in England make little use of the Super Abrasion Furnace (SAF) blacks. For the most part, roads in England are narrow, run through the center of towns and villages which are en-



View from the West of the new research laboratories of the Plastics Division of Imperial Chemical Industries, Ltd., at Welwyn Garden City, England. The external use of the "Holoplast" panels can clearly be seen from this view.

countered every few miles, and are sprinkled with roundabouts. This combination makes high speed travel on English roads practically impossible and the English motoring public has little need for high speed tires.

New I.C.I. Research Laboratory

One of my very first visits was to the new laboratories of the Plastics Division of Imperial Chemical Industries, Ltd., at Welwyn Garden City, a short run northeast of London. Here, I had the pleasure of talking with Dr. Maldwyn Jones, technical service and development manager, and Dr. E. G. Williams, research director. Both of these gentlemen conducted me through the new research laboratory.

The new research laboratory is a three-story building in which constructional plastics materials have been used wherever possible. Officially opened early this year, the building consists of three unobstructed floors each 176 x 48 feet in size and all measurements are based on units of four feet, so that all wall panels, piping lengths, bench units, etc., are interchangeable. The main framework of the building is all steel, cladded externally with "Holoplast" panels. These are laminated plastic panels and have also been utilized in the interior of the building for wall partitions and standardized doors. They are also used for bench tops, but for such use the panels are covered with a wood veneer.

Plastic materials are very much in evidence in the new building. For example, the floors are tiled with PVC which is also used in the drainage pipes, some of the plumbing fixtures are made of polyethylene, and the lighting fixtures are all acrylic plastic. The new research building is one of four planned at Welwyn Garden City and a second building devoted to development work is expected to be constructed within the next three years.

I. C. I. spends more than $20 million a year on research and development and the Plastics Division secures a fair share of the expenditure. This division was formed in 1936 and moved to Welwyn Garden City in 1940. Its major product is polyvinyl chloride with polyethylene running it a close second. The principal plant for these resins is located at Wilton in the north of England where some of the high styrene resins will soon be in production. Initial use of these high styrene resins will be as soling materials and in paint emulsions and an extensive research program is being launched to determine additional applications. Dr. Jones was formerly associated with the Rubber Chemicals Unit of I. C. I. and joined the Plastics Division in 1945.

Current Work of the B.R.P.R.A.

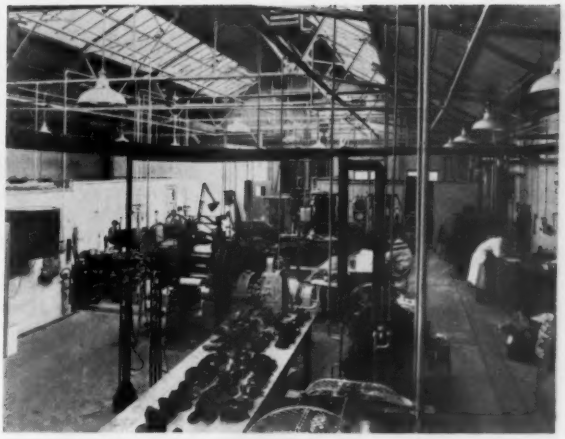
Another pre-convention visit was to the attractive and homey laboratories of the British Rubber Producers' Research Association, also located at Welwyn Garden City, where I held interesting conversations with Dr. L. Bateman (who succeeded Dr. G. Gee as research director in September, 1953), Dr. G. F. Bloomfield and Dr. W. P. Fletcher. The BRPRA, as it is more familiarly known, was organized in 1938 and is financed by the rubber producing industries, securing its income from the Malayan Rubber Fund. In terms of skilled manpower the BRPRA is the largest of the three bodies financed from this fund —the other two being the Rubber Research Institute of Malaya and the British Rubber Development Board— but is the smallest in cost. Its staff numbers about 100 of whom more than half have technical degrees. Its current work is about evenly divided on fundamental chemistry, applied research and technology. Included in these phases are polymer chemistry, physics and latex technology.

Considerable attention is currently being paid by the BRPRA staff to the development of graft polymers, as indicated by the paper on this subject presented at the London Conference by Dr. Bloomfield, an abstract of which appeared in our July, 1954 issue. These graft polymers are self-reinforcing elastomers which are tailor-made for specific applications, somewhat in the same sense that many of the synthetic rubbers are prepared. They are relatively easy to process on conventional rubber equipment and are vulcanizable with normal natural rubber formulas to give, either alone or in admixture with natural rubber, products of high tensile strength and durability. BRPRA refers to these graft polymers as "Heveaplus" materials. Data on two of these materials, namely, Heveaplus M-G and Heveaplus M-M, are available from the association on request.

Heveaplus M-G is prepared by polymerizing methyl methacrylate in rubber latex to give a graft polymer in which the rubber molecules have attached side chains of methyl methacrylate, while Heveaplus M-M is produced

Exterior view of the attractive laboratories of the British Rubber Producers' Research Association at Welwyn Garden City. A staff of approximately 100 spends its time on fundamental chemistry, applied research and technology.

This well laid out and well lighted analytical laboratory is typical of the laboratories in the new research building of the I.C.I. Plastics Division at Welwyn Garden City.



This is a view of the Technology Department of the BRPRA laboratories at Welwyn Garden City. Some of the work performed in this department is subsequently turned over to Rubber Technical Developments, Ltd., for further development.

by admixture of polymethyl methacrylate with rubber. Both of these materials offer excellent reinforcing behavior and are outstanding in flex cracking resistance and dynamic fatigue life. Additional graft polymers prepared by polymerizing other vinyl monomers in rubber latex may be expected to emanate from the BRPRA laboratories.

The BRPRA laboratories are also doing a good deal of work on low temperature rubbers. An extensive investigation is currently being conducted with numerous types of plasticizers, particularly the adipates and sebacates, and some of the resulting compounds have been able to retain satisfactory flexibility at temperatures as low as —80°C. Special compounding techniques which prevent molecular degradation of the rubber have been developed which allow the addition of the necessary quantity of plasticizer while maintaining the required general physical properties. The accompanying chart prepared by BRPRA showing the relative low temperature brittle properties of various rubbers tells a significant story.

Rubber Technical Development, Ltd.

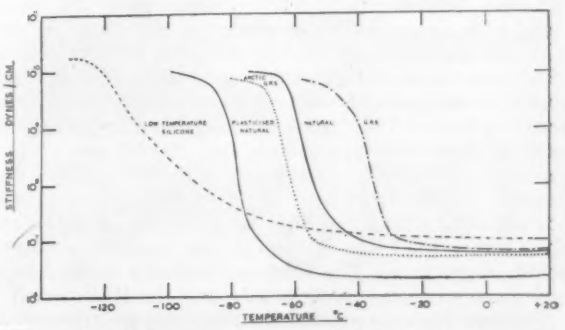
A third visit at Welwyn Garden City included that to the laboratories of Rubber Technical Development, Ltd., which is headed by Mr. S. C. Stokes as superintendent. Mr. Stokes was originally associated with Dr. Henry P. Stevens and joined the BRPRA Technological Department in 1939. He has been with RTD since its inception in 1949 and succeeded Dr. C. M. Blow as superintendent in June, 1953. This unit is a joint subsidiary of the BRPRA and the British Rubber Development Board and its major function is to view developments from the factory standpoint and thus be in a position to offer manufacturers almost ready-made processes.

The RTD laboratory is about one-half mile from the BRPRA laboratories, has a floor area of approximately 5000 square feet, and has equipment for both latex and dry rubber development. It is somewhat flexible with regard to equipment since it must be able to evaluate numerous types of processes on a small commercial scale, these processes running the gamut of rubber products.

RTD is probably best known for its work on Positex, the positively charged latex which is applied to woolen and other fabrics, and on cyclized rubber which is now being widely used as a shoe soling material. Not so well known is its work on fluid rubber and bonded fabrics.

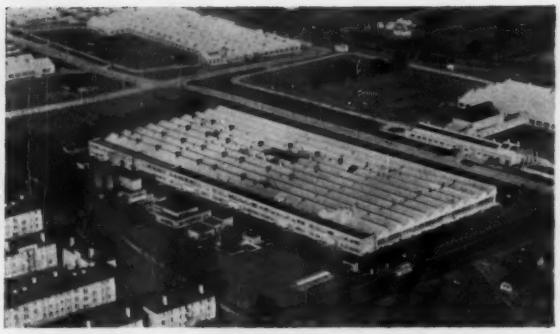
At the moment the most important outlet for fluid rubber appears to be in the manufacture of printers' rollers and compounding modifications have been made in recent months to overcome such imperfections as uneven ink distribution and the variable results obtained on rollers due to the use of different types of inks. Some progress has also been made in the field of fluid rubber ebonites (hard rubbers) and investigations to date indicate that the physical properties are similar to those produced by commercial methods with improvement in impact strength noted. It should be mentioned that the production of hard rubber goods by the fluid rubber process eliminates the need of the costly production tools for vulcanization required by standard techniques.

Where the rubber bonded fiber fabrics are concerned, RTD has concentrated on producing such material in continuous lengths. An automatic fiber feed unit is installed at the laboratory and an automatic lapping device has been designed and erected. The lapping device makes it possible to obtain a fiber web of correct thickness and the even distribution of fiber in continuous lengths. Experiments are currently being conducted to improve the



The relative low temperature brittle properties of various rubbers are clearly depicted in this diagram prepared by the British Rubber Producers' Research Association. The Association is currently conducting an investigation of low temperature rubbers.

Mr. A. Cooper, amiable technical director of Expanded Rubber Co., Ltd. He has been associated with the company since 1938.



Aerial view of the plant of Expanded Rubber Co., Ltd., at Dundee, Scotland. The company's main plant is at Croydon, England, and both plants are engaged in the production of expanded rubbers and plastics

method of latex application and also for the final drying and ironing processes. Bonded fibers produced on the continuous machine are intended for interlinings, but a good potential in the upholstery trade is visualized.

Still another pre-convention visit was to the plant of the Expanded Rubber Co., Ltd., at Croydon which is a short run south of London. Here I visited with the amiable Mr. A. Cooper who has been technical director of the firm since 1938. He previously spent several years with the St. Helens Cable & Rubber Co., Ltd.

The Expanded Rubber Co. is a major producer of expanded rubber and plastics which are used in thermal insulation and for the manufacture of products requiring buoyancy. In addition to the plant at Croydon, the company also operates a modern factory at Dundee, Scotland, and employs some 600 people. Although expanded ebonite is still the major product, the company is producing large quantities of various expanded plastics including polyvinyl chloride and polystyrene and has, of course, done considerable experimenting with the polyester resins. The company utilizes a high pressure method for all of these products and carefully guards its processes.

History of Expanded Rubber

The history of expanded rubber, in which the cells are non-intercommunicating self-contained units as compared with sponge rubber in which the cells communicate with one another, goes back to the year 1905 when the three sons of Robert Pfleumer, an Austrian printer, set about to determine a method of making bicycle tires puncture-proof. They tried various foam compositions, most of them based on gelatin, but in 1907 one of the sons, Hans, began to experiment with thick rubber solutions. Air had been used in all of these experiments, but not until substantial high air pressures of 1500 lbs. /p.s.i. were used was it evident that uniform air cells could be produced. The Pfleumer brothers secured several patents on their processes around the 1910 period.

Further work on expanded rubber was performed by Charles Lancaster Marshall of the Marshall Cord Tyre Company of Willesden, England, about 1920. He was convinced that he could improve on the Pfleumer process and in 1929 he organized Onazote, Ltd., at Willesden. Although Marshall achieved some success with expanded rubber, the high cost of the material prevented any large production from being undertaken and in 1924 he was forced to shut down the Willesden plant. The following year a new company was organized under the name of Expanded Rubber Co., Ltd., and this is the company which is still producing expanded rubber products under the Onazote trade-name. The company moved to Croydon in 1937. The Dundee factory was subsequently established. It is interesting to note that the only company currently manufacturing expanded rubber in the United States is the Rubatex Division of Great American Industries, Inc., at Bedford, Va. It is also being produced in France and Germany.

Wallace's Work on Testing Units

Another interesting visit in the Croydon area was that to the plant of H. W. Wallace and Co., Ltd., which is operated by the A. R. Mores, senior and junior, with F. N. B. Bennett as sales manager. Although the elder Mr. More is some 70 years of age, he is still active in the organization, contributing many design ideas. The younger Mr. More operates as manager of the firm which Mr. Bennett joined two years ago.

The Wallace concern produces a variety of standard and special equipment, particularly small grain elevators, and in recent years has produced a number of testing units for the rubber and plastics fields. Some of this equipment, such as the Wallace dead load hardness tester, which is the first bench type precision instrument able to make rubber hardness measurements in familiar units to laboratory standards of accuracy, has already been described in previous issues of this journal. Another interesting unit being made by the Wallace company is a rapid plastimeter which enables a test piece to be prepared and accurate plasticity readings made in less than a minute. This unit has potential not only in the laboratory but on the production line as well.

This is the first in a series of reports on the European rubber manufacturing industry based on the recent nine-week tour made by the editor of RUBBER AGE. In the next report, we will cover visits to Fort Dunlop, the Goodyear plant at Wolverhampton, the laboratories of the Research Association of British Rubber Manufacturers at Shawbury, and other factories and laboratories in England.

The Manufacture of Rubber Bonded Abrasives

By CARL VON DOENHOFF
Senior Research Engineer, Carborundum Co., Niagara Falls, N. Y.

ABRASIVES are among the most important materials known to industry. These hardest of minerals must be bonded together for use as grinding wheels, and rubber is the preferred bonding material for a number of applications. The Carborundum Company is a leading producer of rubber bonded wheels. In their newly opened $1,000,000 Research and Development Center experimental work goes on continually to improve this important class of abrasive wheel.

Abrasives bonded with rubber, both natural and synthetic, are predominantly of the ebonite type. These hard rubber bonded abrasive wheels are used in a wide variety of grinding operations, such as cutting-off steel bar stock, centerless grinding ball bearing rings, grinding ball bearing raceways, and for some types of "snagging" operations in steel mills.

There is another smaller class of rubber bonded abrasives in which the rubber remains resilient. These resilient rubber bonded wheels are used for many types of polishing applications, such as polishing the flutes of drills and reamers. In the form of pellets they are used for deburring by tumbling. Recently, the resilient rubber bonded wheels have been used successfully in some heavy stock removal applications, such as stainless steel knife grinding.

Rubber is one of the major bonding materials used by the abrasive industry. The other principal bond types are porcelain or glass, phenolic resin and shellac. The unique characteristics responsible for the use of rubber for this purpose are the fineness of the surface finish produced for a given abrasive grit size, and the ease with which rubber compositions can be formed into thin sheets of uniform structure and high strength.

One type of wheel, for example, can be made only in rubber bond; it is a wheel .005 inch thick and about three inches in diameter, used for slotting pen points. These wheels could not be molded from the granular type mix required by the other bond types, but they are relatively simply made from calendered sheets of rubber bonded abrasive mix compositions.

Procedure at Carborundum

At Carborundum the departments devoted to the manufacture of these rubber bonded wheels follow certain procedures to produce the finished materials. These processing steps involve:

1—Bond mixing and masterbatching.
2—Incorporation of abrasive.
3—Calendering of abrasive mix.
4—Cutting out disc shapes.
5—Subsequent molding if necessary.
6—Curing.
7—Finishing to specified dimensions and shapes.

Bond mixing and blending is done either by banding on a standard two-roll rubber mill or by using a Banbury type mixer. However, for incorporating the abrasive, these methods are ruled out by the very nature of the abrasive itself. The abrasive is therefore incorporated by folding into the bond and passing through a two-roll mill with no differential roll speed. Successive additions of small amounts of abrasive with each pass finally produce compositions containing as much as 90% of abrasive by weight and only 10% of bond. When sufficient abrasive has been added and the mix blended to uniformity, the mix is calendered to the desired thickness, which might be any thickness from .005 inch to 2 inches, depending upon wheel type and size to be made.

"Cut-off" wheels are generally ⅛-inch thick or thinner and do not require a subsequent molding operation. The discs are merely cut from the calendered mix and given an air cure in circulating ovens. Centerless grinding wheels, on the other hand, are generally 6 or 8 inches thick and are hot press cured from several 2-inch thick discs of mix which have been cut out of thick calendered slabs. The trimmings from these cut slabs are reprocessed to form new slabs.

The compositions used in abrasives are mostly in the category of extremely highly loaded compounds. The most closely related field in the rubber industry is that of brake linings. A typical composition might contain by weight 6 to 12% of rubber, 3 to 6% of sulfur and vulcanizing agents, 1 to 3% resins, plasticizers, or modifiers, 10 to 20% of inorganic fillers, and 60 to 70% of abrasive grit. For the hard type bonds, the principal rubber types used are natural rubber and styrene type synthetic, while neoprene is generally preferred for resilient bonded wheels.

Carl von Doenhoff, Senior Engineer of the Carborundum Company, came to the company in the spring of 1941 as a Chemical Engineer. Within six months he became interested in research and development work in rubber bonded wheels and in 1945 was made Senior Engineer in charge of this work. During the past year he has been assigned to take charge of some of the resinoid bonded wheels also. Mr. von Doenhoff was graduated from Columbia College and the Columbia Engineering School in 1937 with a master's degree in chemical engineering. He was with Decolein Products, Inc., refiners of vegetable oils, for three and a half years before joining the Carborundum Company. He is married and has six children. His wife is a graduate of Oberlin College and before her marriage was also a research chemist at Carborundum. Mr. von Doenhoff is well-known in local music circles where he is Concert Master of the Niagara Falls Philharmonic Orchestra. He also plays in a string quartet where he satisfies his love for chamber music. In a lighter vein, he has made a hobby of model railroading and belongs to a local model railroad club.

Rubber bonded wheel slitting a pen point at the Parker Pen plant. The wheel is .005 x 3 inches in size and a stream of coolant pours on the metal as the tiny wheel slits it.

Any grinding wheel structure must be closely controlled in grade "hardness." In order to perform a grinding operation efficiently, a delicate balance must be struck between the rate of wear or breakdown of the grinding face of the wheel and the tendency for the grits to dull and become glazed with metal fragments from the work being ground. When the grinding face of a wheel becomes glazed or "loaded" the rate of metal removal drops sharply and excessive heat is generated, burning the work and spalling the wheel face. There are a great many variables which have a vital effect on this delicate balance between wheel wear and wheel loading, both in the technique of applying the wheel to the work and in the formulation and manufacture of the abrasive wheel itself. It is in the study and manipulation of these variables that the abrasive research engineer and the abrasive application engineer use their specialized training.

This is used not only in the plant where actual manufacturing operations are going on, but engineers and technicians in the Research Center are also working in these fields to help develop better products, as well as testing and evaluating commercially produced materials. The consistent quality of these rubber bonded wheels of all kinds can depend much on this cooperative work in the laboratories of the Research Center.

Obtaining Optimum Performance

Each type of grinding operation is likely to require a different balance of properties in the abrasive wheel structure in order to obtain optimum performance. In many cases different plants performing the same grinding operation with the same type of machines may require different grades of abrasive wheels. Any of the following bond modifications can be used to vary the grinding action of rubber bonded abrasives:

1—The ratio of amounts of bond and abrasive grain.
2—Selection of rubber polymer type.
3—Selection of proportion and type of inorganic filler.
4—Selection of amount and type of vulcanizing agents.
5—Selection of curing cycles and methods.
6—Selection of thermoplastic and thermosetting resin modifiers to produce varying degrees of heat resistance, strength, toughness and resilience.
7—Control of porosity in structure wherever processing methods permit.

In addition to all these bond variables, the abrasive grit size and type can be modified to produce different types of required grinding action. There are two principal types of abrasive grain used in rubber bonded wheels: silicon carbide and fused aluminum oxide. The largest usage of abrasive in rubber bonded wheels by far is fused alumina, which is generally specified for grinding metals. Silicon carbide is used in non-metallic applications. A typical non-metallic application is the use of rubber bonded silicon carbide cut-off wheels for cutting glass tubing for vacuum tubes.

A great amount of experimental work, both laboratory and plant scale, is usually required in the development of any new group of bonded abrasive gradings or in the modification of an established group of wheel gradings to adapt it to a new field of application. Just as in the development of tire tread and carcass compounds, accurate prediction of performance from laboratory measurements of physical properties is difficult if not impossible. Similarly, no laboratory performance test result can be accepted as a final indication until it has been thoroughly corroborated by field test results. Nevertheless, the laboratory measurements of physical properties and grinding performance are valuable tools which are necessary for eliminating unsuitable compounds from consideration for further evaluation work.

The primary functions of the bonded abrasive research engineer are, first, to gain as much insight as possible into the basic principles governing the relationship between grinding performance and the controllable variables mentioned above; secondly, to translate this knowledge of principles into practical manufacturing specifications for wheels with better and better performance on known applications; thirdly, to combine his knowledge of the capabilities and limitations of bonded abrasives with a broad knowledge of the industry in general to spark the development of entirely new applications.

Equally necessary is the large number of plant process engineers who must maintain extremely close control over the critical manufacturing variables involved. Rubber bonded abrasives in particular are more difficult to "grade" than any of the other bond types. In vitrified bonded wheels, for example, there is a standard "impact

The versatility of wheels made by the Carborundum Company is seen in this view which shows a fused alumina rubber bonded cut-off wheel cutting a piece of bar steel.

penetration" grading method which is used for inspection and control purposes. With resinoid bonded wheels it has been possible to use a sand-blast penetration method. This type of inspection and control method has not proved applicable to rubber bonds except in rare instances. In the case of rubber bonds, close control and supervision of manufacturing conditions must be relied upon primarily to obtain the accurate grade duplication required of bonded abrasives.

Carborundum's New Research Center

In the new Carborundum Research and Development Center machines and equipment used for experimental and testing work closely resemble actual machines in operation in the plant. All phases of the manufacturing process are considered and any findings or decisions which might benefit the product or its application are at once passed on to the engineers in charge of the manufacture of the product.

Although research has been going on at Carborundum since the first man-made abrasive—silicon carbide—was discovered by Dr. Edward G. Acheson in 1891, and research facilities were constantly being enlarged, the laboratories were scattered throughout several buildings. The establishment of the new Research and Development Center provides facilities for housing in one building most of the chemists, ceramists, metallurgists, technicians and non-technical workers involved in this work.

The Center occupies the second, third and fourth floors of Building No. 1 and covers approximately 60,000 square feet of floor space. Offices, the library, the Patent Branch, the microscopy and X-ray section and the machine shop are on the second floor; laboratories and most of the experimental equipment for research and development are on the third and fourth floors. Rubber experimental work is done on the third floor.

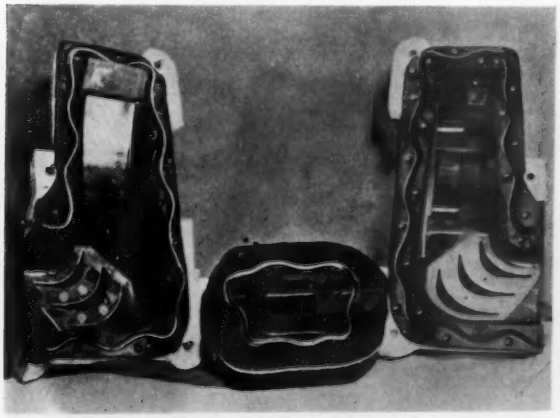
The Research and Development Division is under the direction of Harry C. Martin, vice-president in charge of research and development. Mr. Martin has been with Carborundum since 1913, where he was first an engineer in the research laboratory. He has rendered valuable service to the company through his work in the fields of coated abrasives, resinoid wheels, high temperature refractory materials, "Monofrax" fused cast refractories and "Fiberfrax" ceramic fiber, which is a blanket type of insulation used for jet engines. He also helped develop "Ferrocarbo", a cupola additive for the steel industry, and other additives. He was made assistant technical director in 1944; director of research and development in 1947, and vice-president in 1952.

Closely associated with Mr. Martin is Dr. Gurdon M. Butler, who came to Carborundum in 1947 as assistant manager. Two years later he was made manager of the research and development branch and the various projects are administered under his supervision.

Rubber Core Box Patterns from Cold Casting Compounds

RUBBER core box patterns suitable for heavy production of precise investment plaster molds are now being made from a fluid cold casting compound that sets to rubber at room temperature. The compound is based on Thiokol liquid polymer, manufactured by the Thiokol Chemical Corporation, Trenton, N. J. The liquid polymer is a 100% curable liquid that is fluid enough to be poured at room temperature and sets to a resilient rubber without heat and with extremely low shrinkage.

This method of reproducing the plaster molds has a number of advantages. All details in the master pattern are precisely reproduced by the Thiokol compound. The resulting rubber pattern is dimensionally stable. A factor of very great importance is the ability of the rubber pattern to absorb the stresses established in the pouring and setting of the final plaster molds. As a result, complex patterns can be reproduced in a simple manner.



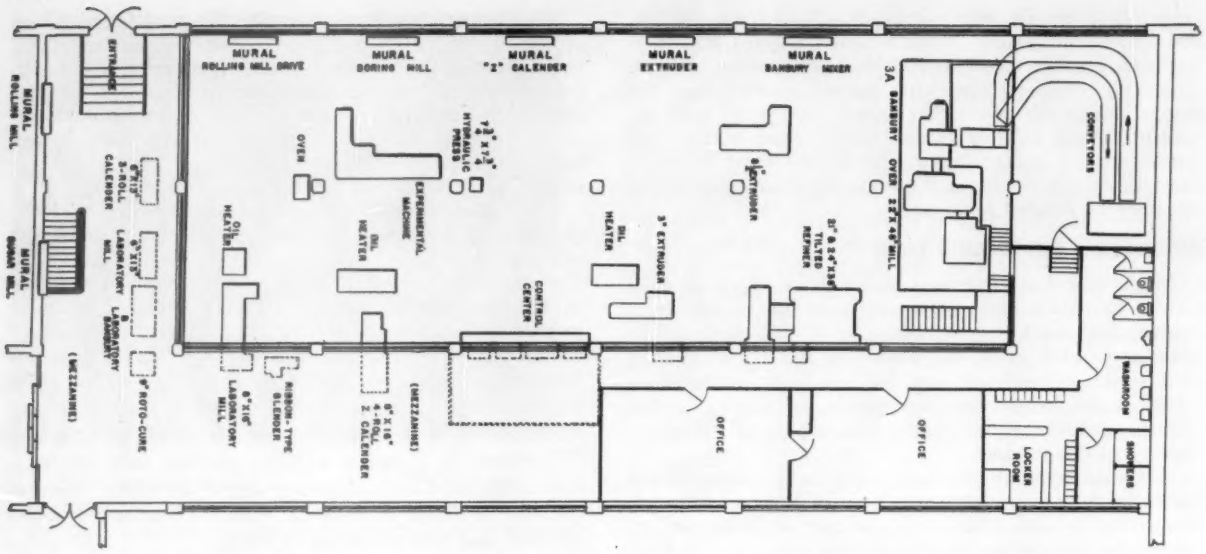
A completed rubber core box pattern made from Thiokol liquid polymer casting compound. This pattern is used for producing investment plaster molds for aluminum castings.

The special properties of these cold casting compounds have resulted in many applications in foundries, potteries and tool and die shops. Aside from investment plaster molds, they are used in model-making and in various steps connected with the production of metal tools, dies and fixtures. Finished products are also being produced from similar casting compounds based on Thiokol liquid polymers. These applications have resulted from simplification of production techniques effected with a fluid rubber that cures without heat and with minimum shrinkage.

The excellent resistance of cured Thiokol liquid polymer to oils, solvents, aging and weathering, together with its good elastomeric properties, are other major properties that have led to its selection in a wide range of products. Some of the products in this category are printing rollers, large rubber relief maps for radar training, poured-in-place gaskets and electrical embedments.

A 10,000 pound capacity **low lift platform truck** has been developed by the Elwell-Parker Electric Co., Cleveland, Ohio, to minimize the possibility of breaking or cracking fragile loads during lifting.

A **wide-strip electronic recorder** for measuring and recording both current and voltage simultaneously on one chart has been announced by the Bristol Co., Waterbury, Conn.



Shown here is a floor plan of the new Farrel-Birmingham process laboratory at Ansonia, Conn.

Farrel-Birmingham's New Process Laboratory

FARREL-Birmingham Co., Inc., has recently completed and put into operation a new process laboratory at Ansonia, Conn. This replaces a similar laboratory formerly maintained at the company's plant in Derby, Conn., where, for many years, a full schedule of experimental and process testing work was carried on by manufacturers of rubber, plastics and other products. This laboratory was closed late in 1953 and moved to Ansonia. The new laboratory, in quarters about three times larger, and with new and improved machines, is better equipped to serve manufacturers who wish to experiment on new processing techniques and the development of new products. A floor plan of the new laboratory is seen above.

In addition to the equipment described herewith, the laboratory also has available for use a ribbon-type blender for the mixing of light materials, scales, conveyors, stock racks and other auxiliary equipment to facilitate convenient operation. The mezzanine floor is partly devoted to office and conference room space. Showers and locker rooms are also located on this level, as well as the loading platform for the 3A Banbury mixer. This laboratory is said to be unique in that as far as the company knows, it is the only one in existence where production machines as well as experimental size machines are installed. There follow herewith descriptions of some of the laboratory and production size machines available for use:

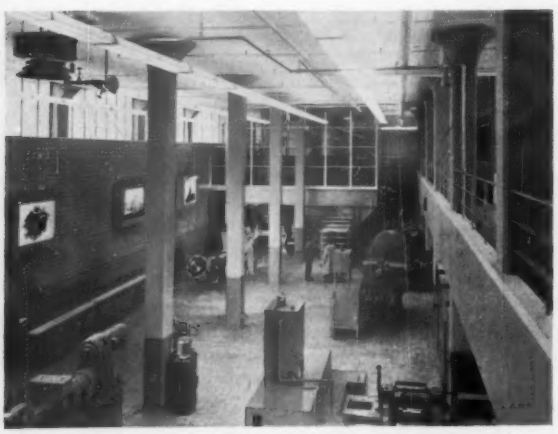


FIG. 1—Shown above is a general view of Farrel-Birmingham's new process laboratory.

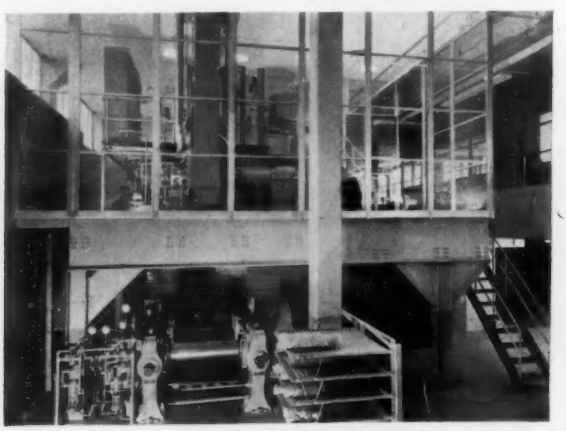


FIG. 2—This is the size 3A Banbury mixer mounted on a glass-enclosed mezzanine.

3A Banbury Mixer

This machine is used to evaluate tests in production-size batches. It has a capacity of 100 pounds of crude natural rubber, or gravity of the batch multiplied by 100. It is driven by a 400 hp DC motor and has a range of rotor speeds from 10 to 100 rpm. This machine has a number of innovations of design which are being tested for possible adaptation to standard units. The Banbury, which is located directly over a 22 inch by 48 inch heavy duty mill, is in a glass enclosure for cleanliness of operation and is fed by conveyors and a power loader. A power exhaust is also part of this installation. (See Fig. 2).

22 by 48-Inch Mill

This mill, placed directly underneath the Banbury mixer, can be used for sheeting out stock or for other milling operations. It is provided with 100 hp individual motor drive and the drive roll speed of the unit is 22 rpm with surface friction of 1¼ to 1. The mill is flood lubricated and a cooling system in the oil sump makes it possible to operate continuously at temperatures as high as 350°F.

8½-Inch Strainer-Extruder

This machine, a new production-size addition to the laboratory, is equipped with a strainer-extruder head and a head for extrusion only. It is driven by 100 hp motor and, by means of a portable conveyor arrangement, can be fed directly from the Banbury mixer. (See Fig. 4).

21 and 24 by 36-Inch Tilted Refiner

This production-size machine equipped with 21 inch and 24 inch by 36 inch rolls is driven by individual motor and arranged to operate at 40 rpm with a surface friction of 2½ to 1. The elevation of the front roll above the back roll makes possible a far greater volume of production than can be obtained with rolls in the same horizontal plane. This unit also can be fed directly from the Banbury mixer by means of a conveyor system. (See Fig. 3).

3-Inch Plasticator-Extruder

This experimental machine designed for breaking down rubber and for continuous mixing and extrusion of rubber and plastics is driven by an adjustable speed motor which provides screw speeds from 12 to 177 rpm. The unit is furnished with a number of interchangeable screws, cylinders and dies which make it possible to apply the machine to a great variety of process tests. An electric oil heating unit gives closely regulated heat for the oil used to control the temperature of the cylinder sections and the screw of the plasticator-extruder. This heating unit, which can maintain varied temperatures in as many as five different sections of the cylinder through which the screw passes, has a range from 70 to 500°F.

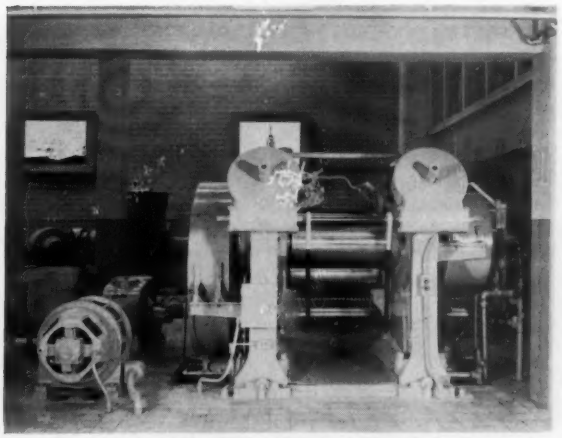


FIG. 3—Shown here is the 21 and 24 by 36-inch tilted refiner at the laboratory.

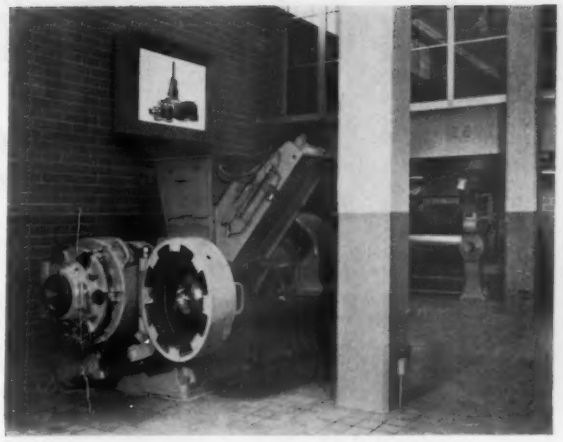


FIG. 4—The 8½-inch strainer-extruder, seen above, can be fed directly from the Banbury.

6 by 13-Inch Laboratory Mill

This newly designed, self-contained laboratory mill has individual motor drive for each roll. Roll speeds are regulated by means of mechanical speed variators. The chilled iron rolls are bored and fitted with distributing pipes and rotary joints. Oil for the cascade lubricating system is provided by a circulating oil pump.

8 by 16-Inch Laboratory Mill

This mill has individual drive for each roll, either roll being capable of running at any speed from 5 rpm to 35 rpm. The back roll is driven by a 15 hp motor through a Farrel speed reducer and then through a universal spindle which is coupled to the roll. The front roll has a similar drive arrangement but with a worm gear unit and a 7½ hp motor. Furnished with an oil heater unit, the mill is capable of operation with roll temperatures ranging up to 500°F. The roll journals are mounted in full bronze-lined boxes which are equipped with oil seals and arranged for flood lubrication. The rolls themselves are bored and equipped with syphon pipes and rotary joints for the circulation of temperature-controlling fluid.

6 by 13-Inch Three-Roll Calender

This calender has rolls powered by a 7½ hp motor. The drive roll speed is 13 rpm. The machine has even and friction gears. The friction gears provide a surface friction ratio of 1.4:1. The calender is equipped with letoffs and windups and there is provision for steam heating the rolls.

8 by 16-Inch 4 Roll "Z" Calender

This experimental machine is designed for high precision and versatility. A direct current gearmotor for the main drive furnishes adjustable levels of speed for all four of the calender rolls which are mounted in a "Z" arrangement. Clutches and gears provide variables in roll speeds one to another so that by movement of clutch levers the rolls may be set at related speeds required for experimental work in film production—single coating or double coating. Equipped with an oil heater, this unit is capable of operation at temperatures up to 500°F.

9-Inch Rotocure

The Rotocure is a continuous vulcanizing machine designed for continous curing, laminating and surface-finishing of rubber and plastics products, such as belting, matting, packing and sheet material. This laboratory-size machine will handle materials up to 9 inches wide.

8 by 8-Inch Laboratory Press

This laboratory hydraulic forming press exerts a total pressure of 30 tons, has a 3½ inch diameter ram, and 7¾ inch square plates equipped for steam circulation.

Morphological Studies of Silicone Rubbers

By DR. ERNST A. HAUSER

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SO far no research on the morphological properties of silicone rubbers has been reported and it was therefore considered advisable to offer now the latest information at our disposal. The investigated silicone rubbers are mainly composed of dimethyl silicone polymers, where in some cases some of the methyl groups have been replaced by phenyl or other similar bulky groups and contain an inorganic filler and a vulcanizer which is generally some type of peroxide such as benzoyl peroxide.

The morphology of the silicone rubbers differs from that of any other synthetic rubber which has been investigated so far, with one exception. Butyl rubber and non-vulcanizable polyisobutylene, however, are similar to silicone rubbers in their morphology, probably because of the presence of methyl groups located in the surface of these polymers.

In studying the morphology of natural and synthetic rubbers it becomes evident that a truly elastic polymer will always form threads carrying globules of different dimensions. A less elastic product forms only broad bands, and products which are only slightly elastic or nonelastic reveal only the formation of more or less coherent films. Depending on the type of silicone rubber investigated, the same phenomena can be observed, although globule formation is not so pronounced as that observed with natural rubber. This should be borne in mind when studying morphological properties, because the phenomenon of globule formation and fine threads is mainly due to a fairly broad molecular weight distribution of the polymer.

A completely compounded silicone rubber paste (Silastic 6-127, Dow Corning Corp.) is used primarily as a coating for cloth, for making heat-stable duct connections with low-temperature flexibility, as an adhesive for splicing silicone rubber tape and cloth, for bonding laminates, and for bonding silicone rubber to metal surfaces. The product has a specific gravity of 1.16 to 1.20; its tensile strength is 650 psi (minimum); its elongation is 500% (minimum); its brittle point is —90°C.; its water absorption at room temperature after seven days amounts to a 1% volume change, and to 2% after immersion in boiling water for 70 hours; in volts/mil its dielectric strength squared amounts to 550; its dielectric constant at 25°C. is 2.96 at 10^2 cycles and 2.93 at 10^6 cycles; the power factors under the same conditions are 0.0055 and 0.0050, respectively *(1, 5, 6, 7)*. Figure 1 represents the morphology of this silicone rubber. It clearly shows that we deal here with a film-forming product and not with a substance exhibiting a high degree of elasticity.

Note: This paper was presented before the 66th Meeting of the Division of Rubber Chemistry, American Chemical Society, New York, N. Y., September 15-17, 1954.

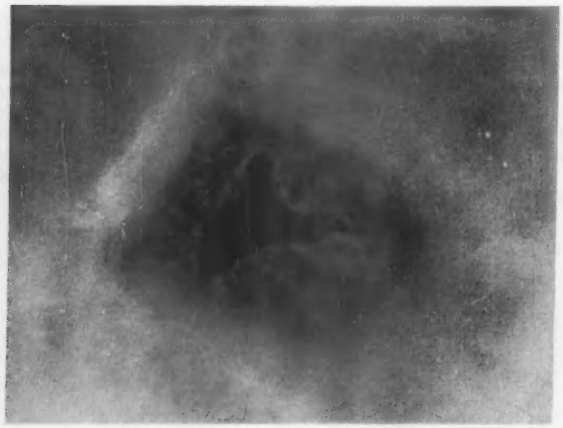


FIG. 1—Completely compounded silicone rubber paste for coating cloth. (Original magnification of all illustrations approximately X550).

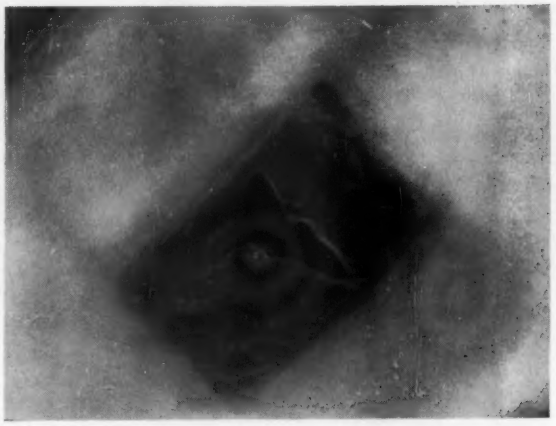


FIG. 2—Completely compounded translucent silicone rubber paste for coating cloth.

Another completely compounded silicone rubber (Silastic 6-128, Dow Corning Corp.) is a translucent paste mainly used for coating cloth. Its specific gravity amounts to 1.13 to 1.17, and its hardness, tensile strength, and elongation are identical with those of the product discussed above. It also has about the same plasticity, brittle point, tear strength and water absorption. Its dielectric strength squared amounts to 600 volts/mil; its dielectric constant at 25°C. is 2.85 at 10^2 cycles and 2.85 at 10^6 cycles. Its power factor, also measured at 25°C., is 0.0006 at 10^2 cycles and 0.0003 at 10^6 cycles *(2, 5, 6, 7)*. Although the morphology of this compound offers a much clearer picture than the one previously mentioned, it resembles it in all other respects (Figure 2). The morphology of this product therefore also indicates that we deal here with a comparatively low molecular weight polymer and one which shows no pronounced molecular weight distribution.

Still another silicone rubber which is also used in the form of a paste for coating glass cloth or organic fabrics used for either mechanical or electrical applications

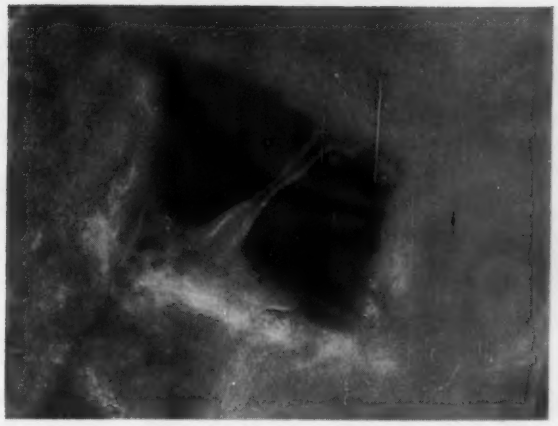


FIG. 3—Silicone rubber paste for coating glass cloth or organic fabrics.

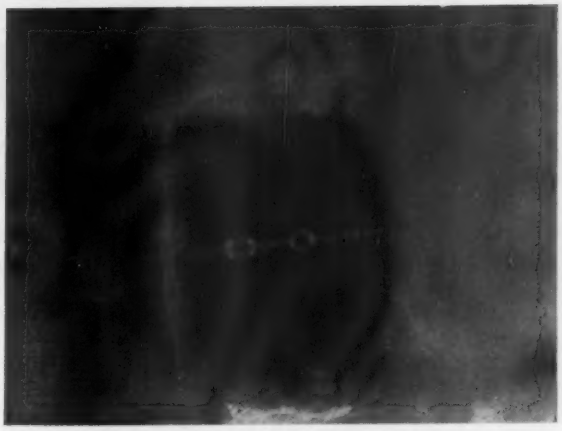


FIG. 4—Silicone rubber with noticeable elastic properties. (Cured at room temperature).

(Silastic 132, Dow Corning Corp.) exhibits an excellent film hardness. The dielectric constant and power factor of molded samples tested at 100 cycles are 3.65 and 0.00515, respectively; and at 10^5 cycles, 3.55 and 0.00339, respectively *(3, 5, 6, 7)*.

From a morphological point of view a pronounced change becomes evident immediately in comparing Figures 1 and 2 with Figure 3, which corresponds to this product. A strong and comparatively broad band forms rather than a film. This is the first of these products to exhibit some noticeable elasticity and a morphology approaching that found with some rubber-type materials.

At this point it seems worth while to offer a brief explanation of the bearing of molecular weight distribution on the morphology of rubber, both natural and synthetic. Natural rubber is characterized by a broad molecular weight distribution. It is composed of high percentages of a low molecular weight fraction and also of a high molecular weight fraction, whereas only a very small percentage of intermediate molecular weight fractions is found. From a morphological point of view, this explains the presence of very fine threads which carry globules of different sizes. In contrast thereto, most synthetic rubbers do not exhibit such morphology, mainly because their molecular weight distribution is more or less uniform. In all probability the basic reason for this is that all synthetic rubbers which are produced by emulsion polymerization exhibit much smaller particles than those found in natural rubber latex and therefore their molecular weight distribution will not vary as much from the particle surface to its interior as with natural rubber.

Another factor which also seems to have some bearing on the morphological properties of the elastomer is its chemical composition. Whenever methyl groups are located in the surface of the polymer particle they seemingly also influence the molecular weight distribution of the polymer, at least to some extent.

A new type of silicone rubber of medium consistency (RTV Silastic S-5302 and S-5303, Dow Corning Corp.) permits the mixture to set at room temperature in approximately two hours, to cure to a rubbery, non-tacky condition in approximately twenty-four hours, and to develop its optimum properties in three to five days. After seven days at room temperature its tensile strength amounts to 270 psi, and its elongation to 380%. Its brittle point lies at −90°C. The dielectric strength in volts/mil obtained from cold-pressed samples of 1/16-inch thickness amounts to 550. The dielectric constant at 10^2 cycles is 3.02 and at 10^6 cycles, 2.91. Its power

FIG. 5—Same silicone rubber as in Figure 4, but caused to set by raising the temperature to 200°C. for five minutes.

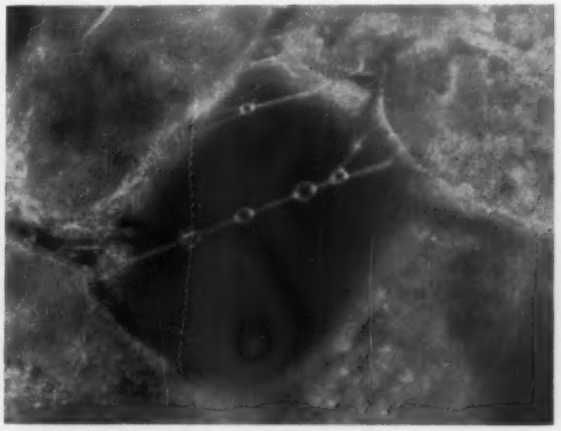


FIG. 6—Combination of elastic silicone rubber and natural rubber (smoked sheet) of identical concentrations.

factor at 10^2 cycles is 0.01 and at 10^6, 0.042 *(4, 5, 6, 7)*.

This product clearly demonstrates its rubberlike properties from a strictly morphological point of view because it reveals the presence of very fine threads interspersed with a few large globules comparable to those found with natural rubber in unvulcanized and vulcanized condition (Figure 4). Exactly the same results are obtained even if a somewhat higher temperature is used for permitting the preparation to set up (Figure 5).

It was felt that it might be interesting to see if and to what extent the morphology of the pure elastic silicones would compare to that shown by a homogeneous mixture of an elastic silicone and natural smoked sheet rubber. The elastic silicone used in this case was identical with the one just discussed and the concentration of it and the smoked sheet rubber was identical. As can be seen in Figure 6, very fine threads are formed, interspersed with globules of different sizes.

On the basis of all these findings it can be assumed that the morphology of rubberlike materials depends mainly on the surface composition of the polymer and its molecular weight distribution.

Summary and Conclusions

Morphological studies of silicone rubbers revealed that film formation only is observable with those silicone rubbers which are mainly used for coating purposes. Truly elastic silicones, however, reveal a morphology comparable to that of natural unvulcanized rubber. A comparison of this fact with similar formations found with Butyl rubber and non-vulcanizable polyisobutylene indicates that the cause of this phenomenon is the presence of methyl groups located in the surface of the polymer and its molecular weight distribution.

The morphology has clearly demonstrated that we are dealing here with a typical surface phenomenon. This is the first time that silicon combined with methyl or phenyl groups has been investigated from a morphological point of view and reported in the literature.

LITERATURE REFERENCES

(1) Dow Corning Corp., Midland, Michigan; Silastic 6-127, July, 1953.

(2) Dow Corning Corp., Midland, Michigan; Silastic 6-128, July, 1953.

(3) Dow Corning Corp., Midland, Michigan; Silastic 132, Sept., 1953.

(4) Dow Corning Corp., Midland, Michigan; Silastic S-5303, Sept., 1953.

(5) McGregor, R. R., "Silicones and Their Uses," McGraw-Hill Book Co., Inc., New York (1954).

(6) Post, H. W., "Silicones and Other Organic Silicon Compounds," Reinhold Publishing Corp., New York (1949).

(7) Rochow, E. G., "An Introduction to the Chemistry of the Silicones," John Wiley and Sons, Inc., New York (1946).

Double-Pass Far-Infrared Oven Speeds Latex Cure on Rugs

WITH other manufacturing steps well in hand, the Patcraft Rug Mill of Dalton, Georgia, found that production of loop rugs was limited by the time required to cure and dry the liquid latex backing. The latex is used to anchor the ends of the yarn and to provide antiskid properties in the finished product.

To speed up the process, Patcraft installed a double-pass far-infrared oven, using Chromalox electric radiant heaters, products of the Edwin L. Wiegand Co., of Pittsburgh, Penna. As a space-saving measure, the heaters are set up in two vertical banks to provide intense, uniform heat to the coated side of the web as it travels up and down through the oven. Closely spaced heaters bring the work quickly up to the drying temperature, while others spaced farther apart accurately hold drying temperatures through the remainder of the oven.

The heaters are mounted on frames attached to rollers so that the assembly can be withdrawn from the work during starting and stopping periods. A blower provides circulation through the oven, exhausting the moisture-laden air.

Latex is now dried evenly and thoroughly at speeds from 8 to 20 feet per minute, depending on material thickness. As a result, rugs can be cut immediately and sent on to be dyed and finished.

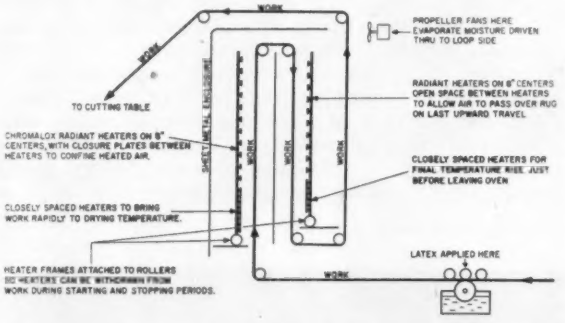

WORK
WORK
PROPELLER FANS HERE EVAPORATE MOISTURE DRIVEN THRU TO LOOP SIDE
TO CUTTING TABLE
RADIANT HEATERS ON 8" CENTERS OPEN SPACE BETWEEN HEATERS TO ALLOW AIR TO PASS OVER RUG ON LAST UPWARD TRAVEL
SHEET METAL ENCLOSURE
CHROMALOX RADIANT HEATERS ON 8" CENTERS, WITH CLOSURE PLATES BETWEEN HEATERS TO CONFINE HEATED AIR.
WORK
WORK
WORK
CLOSELY SPACED HEATERS FOR FINAL TEMPERATURE RISE JUST BEFORE LEAVING OVEN
CLOSELY SPACED HEATERS TO BRING WORK RAPIDLY TO DRYING TEMPERATURE.
LATEX APPLIED HERE
HEATER FRAMES ATTACHED TO ROLLERS SO HEATERS CAN BE WITHDRAWN FROM WORK DURING STARTING AND STOPPING PERIODS.
WORK

Diagram of the radiant oven installation at the Patcraft Rug Mill for drying and curing latex coating on loop rugs.

As it is frequently necessary to store rolls in pyramid fashion to make maximum use of storage space, the Elwell-Parker Electric Co., Cleveland, Ohio, has developed a **cradle attachment** for their fork lift trucks which permits reaching into the pile to pick up rolls not ordinarily accessible when using standard forks.

The **UV Monochromatic Illuminator** introduced by the Farrand Optical Co., New York, N. Y., is designed to yield monochromatic illumination at any chosen wavelength between 220 and 440 millimicrons. It is small, compact and convenient to use with microscopes, colorimeters, photometers and similar instruments.

A complete new line of **one- and two-way variable delivery pumps** has been introduced by the Oilgear Co., Milwaukee, Wisc., for variable speed straight line and rotary drive applications requiring one to three horsepower under precise speed or pressure control.

Suitability of Neoprene Hose for Conveying Aromatic Gasoline

By R. E. MORRIS, R. R. JAMES, A. E. BARRETT and R. CHOW

Rubber Laboratory, Mare Island Naval Shipyard, Vallejo, California

THE suitability of neoprene hose for conveying aromatic gasoline is probably a settled question in the minds of most hose manufacturers. However, little or nothing has been published on this subject. Recent inquiries have prompted us to prepare this paper describing simulated service tests performed on neoprene hose by this laboratory.

At first glance it would appear that neoprene is not suitable for this application in view of the considerable swelling and serious loss of tensile properties which occur when a neoprene vulcanizate is immersed in test fluids resembling aromatic gasoline. In order to illustrate this point, the results of extensive tests performed by us in the course of developing neoprene tube, friction and cover stocks for gasoline hose are presented herewith. This information is given in considerable detail because the composition of the stocks and the results of the tests may be of practical value to hose manufacturers who are interested in meeting the requirements of the nine government hose specifications listed later.

Neoprene Stocks for Gasoline Hose

The compositions of the neoprene tube, friction and cover stocks are given in Table I. Neoprene Type GRT was selected as the base elastomer in lieu of the customarily used Neoprene Type GN for three reasons: (1) Neoprene Type GRT stocks are easier to handle on the mill and on the calender, (2) they have more building tack, and (3) hose made from such stocks retain their flexibility longer at low temperatures.

Note: The opinions or assertations in this article are those of the authors and are not to be construed as official or reflecting the view of the Navy Department or the Naval Service at large.

TABLE I—RECIPES OF NEOPRENE HOSE STOCKS DEVELOPED FOR COMPLIANCE WITH SPECIFICATIONS

	Tube	Friction	Cover
Neoprene Type GRT	90	100	100
Neoprene Type S	10	—	—
Medium thermal black [1]	125	—	—
Fine thermal black [2]	—	—	30
Semi-reinforced furnace black [3]	—	—	40
Medium channel black [4]	—	40	—
Extra light calcined magnesia [5]	4	4	4
Zinc oxide [6]	5	5	5
Stearic acid	1	—	2
Cumar P-25	—	10	—
Bardol	—	10	—
Light process oil [7]	10	10	5
Petrolatum	—	—	3
Phenyl alpha naphthylamine [8]	2	2	2

(1) Thermax. (2) P-33. (3) Pelletex. (4) Micronex Standard. (5) XLC Magnesia. (6) Protox 166. (7) Circo light process oil. (8) Neozone A.

TABLE II—ROLL TEMPERATURES FOR CALENDERING OPERATIONS

	Temperature, °F.		
	Tube Stock	Friction Stock	Cover Stock
Top Roll	125	200	135
Middle Roll	110	180	120
Bottom Roll	80	150	80

The stocks were mixed on a cool 12x24-inch mill. The tube and cover stocks were sheeted off a three-roll 10x20-inch calender at 1/16-inch thickness and rolled in liners. Twenty-ounce hose duck, which had been dried for 2 hours at 220°F. in an air oven, was frictioned on both sides using the calender. Roll temperatures used for the calendering operations are given in Table II.

Tubes of the tube stock and of the cover stock, having ¾-inch inside diameter and ⅛-inch wall thickness, were extruded from a No. ½ Royle Extruder. The temperature of the die was maintained at approximately 80°F. The temperature of the screw was not controlled.

Specimen hose were fabricated by two methods, namely, using calendered tube stock and using extruded tube stock. In the first method, two plies of tube stock were wrapped around a 4-inch O. D. steel mandrel, followed by four plies of frictioned fabric and two plies of cover stock. The assembly was given a straight wrap with two layers of wet muslin and a cross-wrap with four layers of wet herringbone tape, and cured in open steam for 40 minutes at 290°F.

In the second method, a 40-inch length of extruded tube stock was slipped over a ¾-inch O. D. steel mandrel, after which three plies of frictioned fabric and one ply of cover stock were wrapped around the tube. The assembly was then given a cross-wrap with three layers of wet herringbone tape, and cured in open steam for 40 minutes at 290°F.

Since it was not possible with the equipment available to extrude the cover stock onto the specimen hose, separate specimens of extruded cover stock were prepared. Tubes of the stock were slipped over ¾-inch O. D. steel mandrels. These were cross-wrapped with three layers of wet herringbone tape. The assemblies were cured in open steam for 40 minutes at 290°F.

Government Specifications Involved

The physical properties of the specimen hose were determined by the procedures described in the following government specifications:

TABLE III—COMPOSITIONS OF IMMERSION MEDIA IN VOLUME PERCENTAGE

	SR-6	SR-10	Type I Fluid	Type II Fluid	Type III Fluid
Di-isobutylene	60	100	—	—	—
Iso-octane	—	—	100	60	70
Toluene	20	—	—	20	30
Xylene	15	—	—	15	—
Benzene	5	—	—	5	—

(1) Federal Specification ZZ-H-466b of 10 December 1943, "Hose; Gasoline, Rubber-Metal."
(2) Federal Specification ZZ-H-471a of 31 July 1953, "Hose, Gasoline, Synthetic-Rubber, Wire-Stiffened."
(3) Federal Specification ZZ-H-481c of 3 October 1950, "Hose; Oil and Gasoline, Suction and Discharge, Synthetic-Rubber, Wire-Stiffened."
(4) Joint Army-Navy Specification JAN-H-370 of 17 December 1951, "Hose, Gasoline, Synthetic-Rubber (Discharge-Type)."
(5) Military Specification MIL-H-15100C of 23 April 1953, "Hose, Rubber, Wire-Reinforced (Oil-and-Gasoline, Suction and Discharge, Smooth Bore)."
(6) Military Specification MIL-H-15523C of 3 August 1953, "Hose, Rubber (Oil-and-Gasoline Discharge, Smooth-Bore, Light-Weight)."
(7) Navy Department Specification 33H4h of 10 March 1949, "Hose, Oil-and-Gasoline-Suction-and-Discharge, Synthetic-Rubber, Wire-Stiffened."
(8) Navy Department Specification 33H21a of 2 October 1944, "Hose, Oil-and-Gasoline-Suction-and-Discharge, Smooth-Bore, Light-Weight, Wire-Stiffened."
(9) Navy Department Specification 33H23c of 1 June 1946, "Hose, Oil-and-Gasoline-Suction-and-Discharge, Smooth-Bore, Light-Weight (Circular-Woven Fabric, Wire-Inserted)."

All of the foregoing specifications except No. 5 and No. 6 call for the use of SR-6 and SR-10 as immersion media. The latter specifications call for Type I and Type II test fluids. Specimens of the tube and cover stock, prepared from strips cut from the hose and buffed smooth, were tested for change in tensile properties, swelling and extraction in these four liquids in accordance with the specifications, and also in Type III test fluid. The compositions of the five liquids used in these tests are given in Table III. The immersion media which resemble aromatic gasolines are SR-6, Type II and Type III.

The results of the tests on the specimen hose are presented in Table IV along with the requirements of the various specifications. It will be noted that the extruded stocks tended to have somewhat lower tensile strengths and ultimate elongations than the corresponding calendered stocks, but all of the stocks complied with the requirements of the specifications with adequate margins.

Returning to the original purpose of presenting these data, namely, to show the effect of aromatic gasolines on neoprene hose stocks, it is seen in Table IV that the immersion media which resemble aromatic gasoline caused a great drop in tensile strength and a considerable swelling of the tube and cover stocks. For example, SR-6 caused the tube stock to lose about 60% of its tensile strength and to increase in volume by 76%. SR-6 was more severe than Type II fluid, probably because diisobutylene is a stronger swelling agent than iso-octane. Type III fluid was the least severe of the aromatic immersion media.

The adhesions between the components of the hose were seriously reduced by the aromatic immersion media. Again, SR-6 caused a somewhat greater deterioration than Type II fluid. Both of these aromatic liquids were much more severe than the non-aromatic liquid, SR-10.

Simulated Service Tests

The simulated service tests to determine whether or not neoprene hose can be used to convey aromatic gasoline in spite of the damage done to the hose by this fuel, consisted of two kinds. The first test employed a hose obtained from a manufacturer; the second test employed a short length of hose built by this laboratory.

Commercial Hose: One 20-foot length of 4-inch lightweight smooth-bore oil-and-gasoline discharge hose with steel nipples and flanges and one 3-foot length of the same hose without nipples and flanges were procured from a commercial manufacturer. It was specified that neoprene compounds should be used in the hose construction. An examination of a circular cross section of the 3-foot length of the hose showed the following details of its construction:

1. The cover ranged in thickness from 0.142 to 0.079 inch, averaging 0.094 inch.
2. The carcass consisted of six plies of square-woven cotton duck applied in a manner such that the woof threads were circumferential and the warp threads were longitudinal with respect to the hose.
3. Two anti-static wires were imbedded between the 3rd and 4th plies.
4. The tube ranged in thickness from 0.197 to 0.114 inch, averaging 0.138 inch.

Metal closure plates containing the necessary valves were bolted to the hose flanges and the hose filled with a gasoline-aromatic blend. The gasoline-aromatic blend had the following composition in volume percentage:

100-Octane leaded aviation gasoline	60
Toluene	20
Xylene	15
Benzene	5

The hose was next suspended in a vertical position for five days with 30 p.s.i. nitrogen pressure applied to the solvent at the top of the hose to simulate pumping pressure, and 800 pounds of lead weights were fastened to the bottom of the hose. The latter arrangement applied a stress approximately equivalent to the effect of suspension of two 50-foot lengths of hose filled with gasoline from the length of hose under test. Such stress might be exerted on hose during transfer of fuel between two naval vessels at sea as shown in Figure 1.

The foregoing static condition was maintained for two days in order to allow the gasoline to swell the tube

FIG. 1—U.S.S. "Essex" being refueled by U.S.S. "Tallulah" in a heavy sea.

TABLE IV—PROPERTIES OF HOSE TUBE AND COVER STOCKS

	Tube Stock Cal.[f]	Tube Stock Ext.[g]	Spec. Reqmts.[c]	Cover Stock Cal.	Cover Stock Ext.	Spec. Reqmts.
Tensile strength, initial, psi	1800	1700	1250 min.	2160	2040	1800 min.
Ultimate elongation, initial, psi	320	280	250 min.	460	450	300 min.
Tensile properties after immersion in various liquids						
In SR-6 for 46 hours at 80°F.[a]						
Tensile strength, psi	1250	1180	600 min.	1500	1430	600 min.
Ultimate elongation, %	280	260	———	410	380	———
In SR-6 for 48 hours at 80°F.[a]						
Tensile strength, psi	1190	1130	750 min.	1430	1420	750 min.
Ultimate elongation, %	260	240	———	380	370	———
In Type II fluid for 46 hours at 80°F.[a]						
Tensile strength, psi	1300	1310	600 min.	1560	1340	600 min.
Ultimate elongation, %	280	240	———	390	330	———
In SR-6 for 48 hours at 80°F.[b]						
Tensile strength, psi	710	650	600 min.	810	750	600 min.
Ultimate elongation, %	200	170	———	250	250	———
In Type I fluid for 48 hours at 80°F.[b]						
Tensile strength, psi	1470	1300	———	1770	1700	———
Change from initial tensile, %	18	24	———	14	13	50 max.
Ultimate elongation, %	300	260	———	430	420	———
In Type II fluid for 46 hours at 80°F.[b]						
Tensile strength, psi	820	850	600 min.	930	900	600 min.
Ultimate elongation, %	200	190	150 min.	280	270	150 min.
In Type II fluid for 48 hours at 80°F.[b]						
Tensile strength, psi	850	770	———	920	910	———
Ultimate elongation, %	210	190	———	280	280	———
In Type III fluid for 48 hours at 80°F.[b]						
Tensile strength, psi	1000	880	———	1110	1000	———
Ultimate elongation, %	240	210	———	320	290	———
In SR-6 for 46 hours at 158°F.[b]						
Tensile strength, psi	980	900	750 min.	1060	980	750 min.
Ultimate elongation, %	190	180	———	240	220	———
In Type II fluid for 48 hours at 158°F.[b]						
Tensile strength, psi	1110	1040	———	1200	1070	———
Ultimate elongation, %	220	190	———	280	240	———
Swelling after immersion in various liquids at 80°F.						
In SR-6 for 24 hours, %	82	——	110 max.	102	——	110 max.
48 hours, %	76	——	———	97	——	———
In Type I fluid for: 24 hours, %	8	——	———	13	——	———
46 hours, %	——	——	———	17	——	50 max.
48 hours, %	10	——	———	16	——	———
In Type II fluid for: 24 hours, %	57	——	100 max.	72	——	100 max.
46 hours, %	55	——	100 max.	71	——	100 max.
48 hours, %	55	——	———	72	——	———
In Type III fluid for: 48 hours, %	45	——	———	58	——	———
Extraction after immersion in various liquids for 48 hours at 80°F.						
In SR-6, %	5.5	——	6 max.	——	——	———
In Type I fluid, %	3.9	——	6 max.	——	——	———
In Type II fluid, %	5.4	——	6 max.	——	——	———
In Type III fluid, %	5.1	——	———	——	——	———
Oxygen bomb aging at 158°F. under 300 psi pressure						
Aged for 46 hours						
Tensile strength, psi	1670	1500	———	2100	1990	———
Change from initial tensile, %	—7	—12	—25 max.	—3	—2	—25 max.
Ultimate elongation, %	290	260	———	470	460	———
Change from initial elongation, %	—9	—7	———	+2	+2	———
Aged for 48 hours						
Tensile strength, psi	1740	1650	———	2040	1780	———
Change from initial tensile, %	—3	—3	—35 max.	—6	—13	—35 max.
Ultimate elongation, %	310	270	———	470	470	———
Change from initial elongation, %	—3	—4	———	+2	+2	———
Oven aging at 46 hours at 194°F.						
Tensile strength, psi	1830	1700	———	2180	2150	———
Change from initial tensile, %	+2	0	———	+1	+4	—25 max.
Ultimate elongation, %	290	240	———	380	400	———
Change from initial elongation, %	—9	—14	———	—13	—10	———
Exposed to light machine, Sunshine carbon arc semi-filtered through Corex D glasses						
Tensile strength after 50 hours exposure, psi	——	——	———	2230	2120	———
Change from initial tensile, %	——	——	———	+3	+4	—45 max.
Ultimate elongation, %	——	——	———	420	430	———
Change from initial elongation, %	——	——	———	—9	—5	———
Tensile strength after 100 hours exposure, psi	——	——	———	2140	2100	———
Change from initial tensile, %	——	——	———	+1	+3	—25 max.
Ultimate elongation, %	——	——	———	410	400	———
Change from initial elongation, %	——	——	———	—11	—11	———

TABLE IV—CONTINUED

	Tube Stock Cal.[f]	Tube Stock Ext.[g]	Spec. Reqmts.[c]	Cover Stock Cal.	Cover Stock Ext.	Spec. Reqmts.
Permanent Set after 300% elongation for 10 minutes, %	3	3	20 max.	—	—	—
Adhesion, initial						
Machine method on ring specimens						
Between cover and fabric, lbs./in.	33		12 min.	—	—	—
Between fabric and fabric, lbs./in.	52		12 min.	—	—	—
Between tube and fabric, lbs./in.	42		12 min.	—	—	—
Machine method on strip specimens						
Between cover and fabric, lbs./in.	24		12 min.	—	—	—
Between fabric and fabric, lbs./in.	22		12 min.	—	—	—
Between tube and fabric, lbs./in.	22		12 min.	—	—	—
Adhesion after immersion in SR-6 for 48 hours at 80°F.						
Machine method on ring specimens						
Between cover and fabric, lbs./in.	10		— —	—	—	—
Between fabric and fabric, lbs./in.	13		—	—	—	—
Between tube and fabric, lbs./in.	17		—	—	—	—
Adhesion after immersion in Type I fluid for 46 hours at 80°F.[d]						
Machine method on strip specimens						
Between cover and fabric, lbs./in.	13		9 min.	—	—	—
Between fabric and fabric, lbs./in.	17		9 min.	—	—	—
Between tube and fabric, lbs./in.	13		9 min.	—	—	—
Adhesion after immersion in Type II fluid for 48 hours at 80°F.						
Machine method on ring specimens						
Between cover and fabric, lbs./in.	13		—	—	—	—
Between fabric and fabric, lbs./in.	13		—	—	—	—
Between tube and fabric, lbs./in.	19		—	—	—	—
Adhesion after immersion in SR-10 for 48 hours at 80°F.[e]						
Machine method on ring specimens						
Between cover and fabric, lbs./in.	27		9 min.	—	—	—
Between fabric and fabric, lbs./in.	29		9 min.	—	—	—
Between tube and fabric, lbs./in.	30		9 min.	—	—	—
Cold flexibility after 24 hrs. at —40°F. air chamber						
Straightened to 180° angle after 90° bending; hose filled with SR-6	O.K.		no cracking	—	—	—
Straightened to 180° angle after 90° bending; hose filled with Type II fluid	O.K.		no cracking	—	—	—

(a) Specimens tested after 2 hours drying. (b) Specimens tested immediately after removal from immersing fluid. (c) The specification requirements listed are the requirements designated in Specifications ZZ-H-466b, ZZ-H-471a, ZZ-H-481c, JAN-H-370, MIL-H-15100C, MIL-H-15523C, 33H4h, 33H21a and 33H23c. (d) Testing performed in accordance with requirements of Specification ZZ-H-471a with test fluid Type II filling the hose. (e) Testing performed in accordance with requirements of Specification JAN-H-370 with Reference Fuel SR-6 filling the hose. (f) Calendered. (g) Extruded.

and to penetrate into the hose carcass. At the end of the two-day period, and while maintaining the pressure and load described above, the bottom end of the hose was twisted for six successive times through an arc of 180 degrees, three times from right to left, and three times from left to right, alternately. This was repeated at hourly intervals for 16 hours out of each day during the remaining three days of the test period. The twisting of the hose was another feature intended to resemble the stresses acting on hose during fueling-at-sea operations.

The hose did not leak during the five-day test, although its length increased 2⅝ inches as a result of the stresses. The gasoline was drained from the hose and the hose was cut open and examined for damage, if any. In addition, 1-inch by 6-inch strips were cut from the hose and the adhesions of the various plies to each other were immediately determined. These adhesion values, and comparable adhesion values measured on a specimen cut from the 3-foot length which had not been filled with aromatic gasoline, are given in Table V. Also presented in this table are the initial tensile properties of the hose tube and cover.

The data in Table V show that substantial decreases occurred in the strengths of the adhesions between the components of the hose wall, amounting to almost half of the initial values. Notwithstanding these decreases in adhesive strength, no evidence of separation was found in the wall of the hose or between the steel nipple and the tube proper. The cross section of the hose after the 5-day test is shown in Figure 2.

The only objectionable effect of the gasoline on the hose was due to a manufacturing defect. The tube stock had flowed between the nipples and the mandrel on which the hose was built, and had not been removed after cure. The gasoline caused these fringes to swell, separate from the nipples and protrude into the cavity of the hose, as shown in Figure 3. This condition has been observed in oil hose which has been in actual service, and is believed to be a contributing factor to one type of hose failure. In a case which has come to the authors' attention, the flow of oil through the hose caused the loosened fringe to fold back, thereby restricting the flow. This caused the pressure to build up to the point where the hose began to leak around the couplings.

It was found that the non-volatile content of the aromatic gasoline increased from 0.008 grams to 1.286 grams per 100 ml. during the five-day sojourn in the hose, due to material extracted from the neoprene stocks.

FIG. 2—Cross section of commercial neoprene hose which held aromatic gasoline for five days.

Such a high concentration would not ordinarily occur in service because stagnant gasoline would not be left in the hose.

Laboratory-Built Hose: A short length of 4-inch hose with built-in nipples was constructed by the laboratory using the neoprene stocks formulated in Table VI. This work was done prior to the development of the Neoprene Type GRT stocks mentioned previously. The steps in the construction are described below:

1. The steel nipples were sandblasted and coated with TyPly SA.
2. The nipples were placed on a soapstoned mandrel and coated with two applications of neoprene cement made from the tube-and-cover stock.
3. Three layers of tube stock 1/32-inch thick were applied to the nipples and to the mandrel.
4. Four layers of frictioned 18 oz. hose duck were applied over the layers of tube stock in such a manner that the warp and fill were parallel to, and perpendicular to, the long axis of the hose, respectively.
5. Four separate wrappings, each 15-17 turns, of 0.08-inch diameter steel wire were applied over the layers of hose duck on each nipple. The wire wrappings were located between and on each side of three ½-inch wide by ¼-inch thick steel bands on the nipple.
6. The grooves above the wire wrappings were filled with three layers of tapes consisting, respectively, of the stock and two layers of frictioned fabric.
7. Three layers of cover stock 1/32-inch thick were applied.

The assembled hose was cross-wrapped with four layers of wet tape and cured in open steam for 60 minutes at 290°F.

The hose was filled with the aromatic test fuel described above and subjected to an internal pressure of 50 p.s.i., a temperature of 120°F., and a tension of 1000 pounds for two weeks. The elevated temperature was used to accelerate the deterioration of the hose. Figure 4 is a schematic drawing of the apparatus used for creating these conditions.

The neoprene hose satisfactorily withstood this test. Dissecting the hose after the test revealed no evidence of tube failure. The plies of fabric still had excellent adhesion and the cover was intact.

In both of the simulated service tests it had been anticipated that the tube of the hose would break where it went over the edges of the built-in nipples. At this point the tube is subjected to a considerable strain when the hose is stressed lengthwise, because the tube is bonded both to the rigid nipple and to the extensible carcass of the hose. Neither of the neoprene hose gave any evidence of failure at this point, although another hose

TABLE VI—RECIPES OF NEOPRENE STOCKS USED IN HOSE FOR SECOND SIMULATED SERVICE TEST

	Tube and Cover	Friction
Neoprene Type GN	100	100
Medium thermal black	100	—
Medium channel black	—	40
Extra light calcined magnesia	4	4
Zinc oxide	5	15
Stearic acid	1	—
Paraffin	1	—
Light process oil	10	18.5
Barrett Oil No. 10	—	10
Cumar P-25	—	5
Cumar AX	—	5
Phenyl alpha naphthylamine	2	2
Sodium acetate	—	1

TABLE V—EFFECT OF SIMULATED SERVICE TEST ON ADHESION OF HOSE PLIES

	Initial Properties	Properties after 5-Day Test
Tensile strength (p.s.i.):		
Cover	1780	—
Tube	1800	—
Ultimate elongation (%):		
Cover	280	—
Tube	320	—
Adhesion (lbs. per inch width):		
Between tube and 1st ply	22	10
Between 1st and 2nd plies	26	14
Between 3rd and 4th plies	25	14
Between 6th ply and cover	20	12

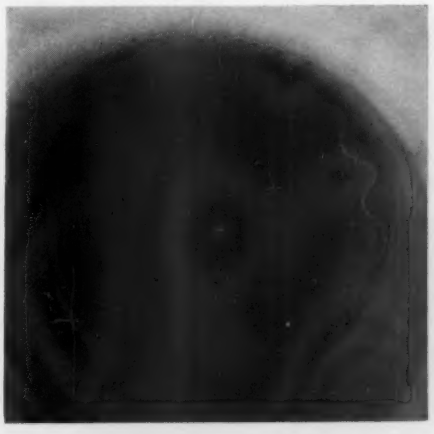


FIG. 3—Fringe of neoprene hose tube on inside of steel nipple showing swelling by aromatic gasoline.

with a tube made from a different synthetic rubber of much greater resistance to gasoline than neoprene, failed at this point by tearing in the tube.

It is concluded that neoprene hose are satisfactory for transporting gasolines with aromatic contents up to 40%.

Summary

The recipes and properties of tube, friction and cover stocks from Neoprene Type GRT which comply with the requirements of nine military specifications for gasoline hose are given. It is shown that the standard laboratory aromatic test fuels cause severe swelling and serious decreases in the tensile properties of these stocks. Notwithstanding this behavior, a neoprene hose made by a commercial manufacturer and a hose made by the laboratory from Neoprene Type GN withstood successfully simulated service tests while containing an aromatic gasoline blend. It is concluded that neoprene hose are satisfactory for transporting gasolines with aromatic contents up to 40%.

ACKNOWLEDGMENT

This work was part of a program under the general surveillance of the Bureau of Ships' Elastomer Section, of which Mr. T. A. Werkenthin is Head Engineer. The authors wish to acknowledge the help of E. B. Caldwell of this laboratory in the simulated service tests.

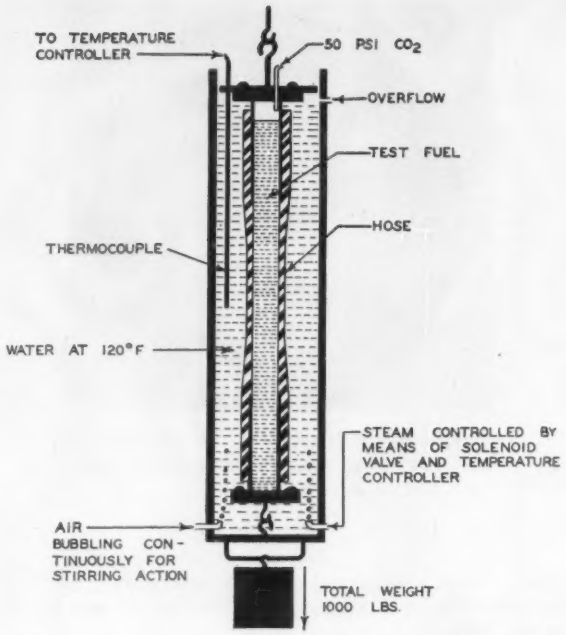


FIG. 4—Cross section of arrangement for simulated service testing of laboratory-built hose.

Retreading Process Molds Steel Wire in Truck Tire Treads

A NEW retreading process for molding heavy-duty steel wire into the tread contact area of truck tires has been perfected by the Firestone Tire & Rubber Company. Hailed as one of the greatest advancements in retreading history, the wire-equipped new treads, called "Dura-Trac," will provide greater traction and improved protection against road failure.

The Dura-Trac wire, having a heavy gauge steel alloy base and designed in a zigzag pattern, may be used in any rib design truck tire without altering or changing the design in any way. In the retreading process, the wire is looped into the matrix rib and butted. The tire is then placed in the mold and cured in the normal manner. The tread rubber, when heat and pressure are applied in the mold, flows around the wire and "sets" it permanently into the tread stock.

Heavy steel annealed wire of a zigzag pattern is here looped into the matrix by a retread operator in the new Firestone Dura-Trac wire retreading process.

Increased traction is accomplished by the hundreds of steel gripping points per rib foot of tread. While the tire is rolling free, the tread rib is relaxed and the wire points do not contact the surface of the road. When brakes are applied on the truck or when the vehicle is accelerating or skidding, the tread rubber stretches and the steel wire claws reach out and bite into the road surface.

One of the greatest advantages of the Dura-Trac wire retread is the increased protection it provides against tire damage. The wire coils, embedded in the ribs of the tire, prevent many cuts and bruises from nails, glass, stones and other foreign objects on roads that would cause failures in ordinary retreaded tires.

The Dura-Trac wire process is an exclusive Firestone development. The new retreads are now available at all Firestone dealers and Firestone retread shops.

Gardsman Model JG Series program controllers produced by the West Instrument Corp., Chicago, Ill., are said to assure completely automatic process control of any time-temperature cycle with off-on, proportioning, high limit or stepless control action plus secondary control action.

A new line of **auto-clean spout magnets** that eliminates hand cleaning and automatically removes tramp iron from the flow of material has been introduced by Stearns Magnetic, Inc., Milwaukee, Wisc.

Hydraulic Press Eliminates Three Costly Steps in Rubber Flash Removing Operation

THREE costly, time consuming operations used to remove flash from small molded rubber products have been completely eliminated by the use of a hydraulic press method which, in addition to turning out a better product cheaper, has increased production by over 100%.

The Nye Rubber Company, Barberton, Ohio, one of the largest manufacturers of small rubber parts, such as wheels for toys, etc., was faced with the problem of cleaning flash from thousands of pieces each day. Old methods called for first cutting the pieces apart from the large mold. They were then placed in dry ice tumblers. The rubber would freeze, making the thin flash brittle and easily breakable. After freezing the rubber piece would then be tumbled, several thousands to each batch. Tumbling would rip off the flash, but leave irregular edges. To remove the edges called for a rapid buffing operation which was followed by washing all the parts to remove scuff marks, grit and other dirt and irregularities. The parts were then packed for shipment. Each of these steps required hand loading and unloading; each was costly and time consuming.

To eliminate this high cost operation, Nye Rubber called in the Denison Engineering Company, Columbus, Ohio, who adapted a four-ton hydraulic Multipress (Figure 1) and a six station hydraulic index table to make the flash removal job practically automatic. The operator simply loads the rubber work on the index table, for all other operations are pre-set. Production rate of one operator is 2400 units per hour. These are finished parts for packing and shipping to the customer. No other operations are necessary, because the flash is trimmed neat and close without damage to the work piece itself.

FIG. 2—Each station of the six-station index table is tooled with locating sleeves and anvils for the cutting blades mounted on the ram. The table movement is synchronized and interlocked with the action of the press ram. The operator loads the work pieces on the empty station and the operation is completely automatic after loading.

FIG. 1—This 4-ton Multipress has eliminated three costly steps in a rubber flash removing operation. About 40 operations a minute are completed on the press, equipped with a Denison index table.

FIG. 3—After trimming takes place, the table indexes to the next station. Here, a lever arm, connected to a bar in the base of the locating sleeve, rides a cam, thus raising the edge of the cleaned rubber wheel. The index table in moving to the next station actuates an air valve releasing a blast of 80 p.s.i. air under the raised edge of the work piece.

FIG. 4—For smaller wheels a 4-ton Multipress is used to produce finished parts at rates of 1500 per hour. The molded wheels are placed on a holding fixture and the ram manually actuated. The finished piece is blown through the hollow base into a box for packaging.

FIG. 5—The air valve is actuated by a cam riding the press ram. The air dislodges the wheel from the open center anvil.

In addition to the large production increases, the use of the hydraulic Multipress increases die life. Two cutting blades, one trimming the inside diameter and the other the outside diameter, are mounted on the press ram. The smooth controlled pressure-stroke of the Multipress ram reduces wear on the dies to a minimum.

Each station of the six-station index table is tooled with locating sleeves and anvils for the cutting blades mounted on the ram (Figure 2). The table movement is hydraulically interlocked with the action of the press ram. The operator loads the work pieces on the empty station and the operation is completely automatic after loading. After trimming takes place, the table indexes to the next station, where a lever arm (Figure 3), connected to a bar in the base of the locating sleeve, rides up a cam, thus raising the edge of the cleaned rubber wheel. The index table, in moving to the next station, actuates an air valve releasing a blast of 80 psi air under the raised edge of the work piece. The air blast ejects the work into a chute for packaging.

Speed is adjusted to about 40 operations a minute. Both the press and index table are capable of higher speeds, but this rate has been found best suited for continuous loading of parts by the operator.

On the smaller rubber wheels, which require no inside diameter flash removal, a four-ton D-frame Multipress is used to finish over 1500 units per hour (Figure 4). A unique fixture on the ram has simplified this operation by making removal of the finished piece automatic. As the ram descends, a cam actuates an air valve (Figure 5) which releases air at 80 psi through an opening in the top cutting blade. This blows the finished rubber wheel through the holding fixture into a box for packaging. This small press has dual lever controls which must both be actuated to operate the press. Thus, both hands are away from the table at the ram stroke.

Nye Rubber now has four Multipresses in operation, all performing the same flash removal operation on different size pieces. More than 50,000 parts a day are finished with one operation.

Le Caoutchouc Manufacturé: Les Principales Fabrications. (Rubber Manufacture: The Major Products). By P. Durou. Published by Presses Documentaires, 28 Rue Saint-Dominique, Paris, France. 5¾ x 8¼ in. 102 pp. Price: Frs. 520 (approximately $1.50). (In French).

One in a series of industrial books devoted to principal manufactures, this work is devoted to the major products of the rubber industry. The first two chapters are general in nature. outlining the operations typical of factories using dry rubber and latex, respectively, while the following ten chapters are each devoted to the production of specific products, including tires, belting, hose and tubing, insulation, coated fabrics, matting, thread, foam rubber, hard rubber and footwear. Schematic drawings are utilized in almost every chapter to indicate processing and typical formulas for most of the products under discussion are included. Although not too extensive in scope, this work would well be sub-titled "An Introduction to the Rubber Industry" and should prove of value to every French-reading member of the rubber manufacturing field.

The Use of Rubber Models in Stress Investigations. Published by the British Ministry of Supply, London, England. Available from the British Information Service, 30 Rockefeller Plaza, New York 20, N. Y. 9 x 12 in. 22 pp. $1.00.

Techniques of building better aircraft structures by applying loads to rubber models of the metal skins of aircraft and then measuring the resulting stretch of the rubber are covered in this technical report. The report, of special interest to aeronautical and other engineers, consists of three parts, each contributed by an outstanding expert. In Part I, the possibility of using rubber sheet subjected to large strains for the purpose of stress investigations is examined. In Part II, the method is used to explore the stresses around holes of various shapes, and variously reinforced, in flat sheets in tension. In Part III, the method is applied, first to obtain the stresses around a semi-circular notch cut in the side of a sheet strip under tension, and second to obtain the stress distribution in a sheet strip lightened by a series of circular holes when the strip is subjected to shear forces. Numerous diagrams are used to support the text.

Editorials . . .

Replanting Problems

SOME eighteen months ago the Government of the Federation of Malaya and the Rubber Producers Council appointed a three-man inquiry board to investigate the competitive position between the natural and synthetic rubbers. This board, composed of outstanding independent rubber experts, has now rendered its report, and its findings, we suspect, will come as a rude shock to many rubber planters. In substance, the report indicated that unless a massive replanting program was launched in the Far East in the immediate future "the end of the rubber industry in Malaya, as we know it, is inevitable within the next fifteen or twenty years." To say the least, that's mighty strong language.

The inquiry board, which released its findings in London on September 30, found that the rate of replanting over the rubber producing industry in Malaya as a whole was totally inadequate. In strong terms it warned the producers that Malaya had to bring production costs below the "likely" prices of synthetic rubber which, long range, "might finally fall as low as 15 cents a pound." This, again, is strong language, since to our knowledge no estimate as low as 15 cents a pound for synthetic rubber has ever appeared in print and every foreseeable economic factor is lined up against so low a price, particularly for synthetics based on butadiene and styrene. Maybe the board has an unusual crystal ball.

Producing interests in the Far East have long been convinced of the necessity of replanting with high yielding strains. Reports on yields close to 2000 pounds per acre both from budgrafts and clonal seedlings are not unusual, as compared with the average of 300 to 400 pounds for old seedling rubber. According to reliable reports, Malaya has replanted over 600,000 acres with high-yielding clones since the end of World War II and Indonesia some 550,000 acres. It is true that most of this replanting has been done by the large estate operators, but an organized effort for replanting by smallholders has been under way for some time in Malaya.

Some confusion exists in many quarters with regard to the smallholders replanting scheme in Malaya, and some people are of the impression that it is a government venture. Such is not the case. The program is in the hands of the Rubber Industry (Replanting) Board, which has its headquarters at Kuala Lumpur, and the funds for grants to the smallholders are derived from a special cess imposed for the purpose and collected on rubber exported from the country. Grants are made for replanting on the basis of $400 (Straits) per acre. Some $600,000 (Straits) was expended for such purpose in August of this year and a larger expenditure was anticipated for September.

Obviously, however, the special inquiry board believes the replanting program, where both the estates and smallholders are concerned, is moving too slowly, and may possibly be making a bid for major government support. There are approximately 3,750,000 acres under rubber cultivation in Malaya, only some 15% of which now bear high yielding strains. It seems evident that the inquiry board would like to see at least 50% of this acreage producing at the rate of approximately 2000 pounds per acre which would, of course, either mean lower prices on natural rubber or greater profit margins for the producers—depending on the supply and demand position of the moment.

The crux of the situation seems to be that 15-cent-a-pound synthetic rubber and frankly we believe that the inquiry board went a bit overboard on that score. The belief of experts in the United States is that as, if and when private industry takes over the production of synthetic rubber, prices will tend to rise in the first few years and will then level off somewhere near the present price of 23 cents a pound.

Around the Circuit: It is rumored that the Wilson Rubber Co., Canton, Ohio, has been sold to Sidney Albert. . . . Maytag Co., Newton, Iowa, has completed installation of rubber equipment, including a 3A Banbury, a 60-inch mill, and two of the new type Adamson-United barrel presses. . . . The 1955 Chrysler line will have arm rests of vinyl sponge rather than sponge rubber. . . . Comar Products, Butler, N. J., is installing a new mill and will do their own mixing. . . . Corson Rubber Co., Barberton, Ohio, is planning the production of plastic sponge. . . . A new bulk handling system is being considered for the Firestone plant at Memphis. . . . Chemage Products Co. is the name of a new rubber concern in Brooklyn, N. Y. . . . C. D. Rubber Co. is planning to produce its own camelback at Springfield, Ohio. . . . Reynolds Chemical Co., Ann Arbor, Mich., is reported to be merging with North American Phillips Co. . . . Ashland Rubber Products Corp., Ashland, Ohio, has completed a large plant addition.

Highlights Sidelights *of the News . . .*

October, 1954

With the announcement of GR-S production estimates for the balance of 1954 by the Federal Facilities Corporation, it will be noted that total production will approximate 467,000 long tons . . . This is just about 200,000 long tons less than were produced in the previous year . . . GR-S consumption in 1954 may run more than 120,000 tons behind usage in 1953 (page 87).

A new research center planned by the U. S. Rubber Co. in Preakness, Wayne County, N. J., may be ready for occupancy in early 1956 . . . Total cost of the new center is expected to hit the $4,000,000 mark . . . Comprising three buildings, the new center will have about 134,000 square feet of floor space and will suggest a university campus in appearance (page 96).

The recent death of Representative Paul Shafer (Rep., Mich.), "Father of the Rubber Act", may retard chances for the successful sale of the government's synthetic facilities in the opinion of some in the trade . . . It has been reported that the White House is taking an active interest in disposal and that this executive attitude may spur sales activity (page 87).

While no concrete figures are available, it is believed that a record number of persons attended the 66th Meeting of the Division of Rubber Chemistry, A.C.S., held recently in New York City . . . Unofficial estimates place registration at about 1,200 . . . The previous all-time high was the Cleveland Meeting of 1950, when 1,140 registered (page 88).

The United Rubber Workers, C.I.O., at their recent meeting in Boston voted to hold conventions and elections of international officers once every two years instead of every year as heretofore . . . I. S. Buckmaster, union president, called for effective union political action stating that it is useless to win battles on the economic front only to lose them on the political front (page 91).

Personnel changes of note during the past few weeks include: Dr. M. M. Morton succeeds Dr. G. S. Whitby at Akron University (page 91) . . . J. S. Corrigall succeeds the retiring Dr. A. A. Somerville at R. T. Vanderbilt's Rubber Department (page 95) . . . R. E. Hatch, associated with the Polymer Corp. in Canada since 1942, has been promoted to general sales manager (page 118).

NEWS REPORTS and Industry Activities

GR-S OUTPUT IN 1954 TO TOTAL 467,000 TONS; 2nd QUALITY CONFERENCE SET FOR NEW YORK

LAURENCE B. Robbins, Administrator of the Federal Facilities Corporation, has announced that production of GR-S in 1954, including the oil content, will be approximately 467,000 long tons, and sales will be approximately 489,000 long tons. According to figures released by the U. S. Department of Commerce, some 670,000 long tons of GR-S were produced in 1953.

It has now been announced by the Rubber Trade Association of New York, Inc., and the Rubber Manufacturers Association, Inc., that the Second International Rubber Quality and Packing Conference will be held in New York, N. Y., on May 3 to 6, 1955. Both associations will jointly sponsor the conference which will be conducted at the Essex House, 160 Central Park South, New York City.

In announcing the FFC estimates for GR-S production and sales in 1953, Mr. Robbins stated that production of GR-S in December of this year will be in the order of 41,500 long tons, while sales will be approximately 46,500 long tons. Inventory of GR-S, including oil, held by the FFC as of August 31, 1954, was approximately 82,800 long tons.

The following table sets forth an estimate of FFC's production and sales of GR-S for the three months' period ending December, 1954. These figures include the oil content of oil-extended rubbers, but exclude the carbon black used in carbon black masterbatches. The figures are in long tons:

Month	Production	Sales
October	41,200	46,000
November	40,500	43,000
December	41,500	46,500

Quality Conference Background

For the first time in the history of the rubber industry, a private conference was held in Singapore in April, 1954, which was attended by producing, packing, shipping and research organizations of the Far East and importing and consuming organizations of Europe and the United States, for the purpose of discussing matters of mutual concern.

Delegations from twenty-two rubber associations and affiliated organizations, representing nine nations, attended the Singapore conference, which resulted in a better understanding and appreciation of the problems with which both producers and consumers were faced.

American representatives were given the opportunity of presenting the reasons why American manufacturers desire natural rubber conforming to RMA type descriptions, packing specifications and type samples. Prior to World War II, these standards were uniformly met. Far Eastern representatives explained and demonstrated the changed conditions that made conformance to the RMA standards impossible in certain cases.

The conference generally approved the existence of the 30 RMA grades and 7 Singapore grades. All organizations recognized the desirability of establishing a minimum number of universally recognized natural rubber types and grades. At the conclusion of the conference, it was unanimously agreed that a second conference should be held in New York to continue the discussion of these and related matters.

It is expected that the same general pattern of representation, with possible additions, will be followed at the New York conference in May, 1955. Invitations have been dispatched to the organizations which attended the Singapore Conference, as well as certain other organizations which were not represented at the meeting.

While in the United States, the visiting delegates will be afforded an opportunity to view rubber as it is discharged on the docks, attend quality arbitrations and visit rubber factories and synthetic rubber plants.

The details of the conference will be worked out by a joint committee of the Rubber Trade Association of New York and the Rubber Manufacturers Association.

In other happenings during the past period, the Rubber Producing Facilities Disposal Commission announced on October 1 that it had mailed to every bidder a tentative uniform draft of contract for sale of the government-owned synthetic rubber plants, and had asked for their suggestions or comments on the contract provisions.

The purpose of this mailing is to expedite the closing of contracts during the negotiation period. The contract spells out in detail the legal procedure by which the properties will pass from government to private ownership. Under Public Law 205, the entire disposal program, of which these contracts are a major part, must be submitted to Congress for review. The Commission will make its recommendations to Congress no later than next January 27th.

"All bidders have been invited to examine the contract drafts in line with the Commission's policy of affording all prospective purchasers equal opportunity to negotiate and conclude sales," Holman D. Pettibone, Chairman of the Commission, said. "This course will save considerable time in concluding negotiations, tend to standardize contract forms, and expedite completion of the Commission's job within the time limits prescribed by law."

White House Shows Interest

According to recent published reports, the White House is showing a great deal of interest in the progress of the Rubber Producing Facilities Disposal Commission in the sale of the synthetic facilities. It has been reported that Major General Wilton B. Persons, deputy assistant to the President, has informally contacted the commissioners for a progress report. It is felt in some quarters, that the White House action may spur final sales.

Others believe that the recent death of Representative Paul Shafer (Rep., Mich.), retards chances for the successful completion of a sales program. After four months of negotiations, the Disposal Commission has yet to sign its first contract with any of the bidding companies. A commission spokesman has said, however, that bidders have been revising their offers upward in recent weeks.

One source put chances of selling the synthetic plants at "less than 50-50" since the death of Representative Shafer. He recalled Representative Shafer's prestige in the eyes of leaders of both parties and predicted that the Michigan Republican will be sorely missed.

RECORD ATTENDANCE FEATURES 66TH MEETING OF THE RUBBER DIVISION

The 66th Meeting of the Division of Rubber Chemistry of the American Chemical Society, which was held at the Hotel Commodore in New York City on September 15 to 17 in conjunction with the 126th Meeting of the parent society, was one of the most jam-packed meetings of the past several years.

Although, unfortunately, there is no satisfactory method for determining specific divisional registration when the division meets with the parent society, it is estimated that such registration exceeded 1200, making it the largest divisional meeting on record. In any event, it is believed to have exceeded the registration at the Cleveland meeting in 1950, which was the previous all-time high. Approximately 1140 registered at the 1950 sessions.

The New York meeting featured the presentation of 34 technical papers, election of new officers, a business session, a luncheon-meeting of the 25-Year Club, the suppliers' cooperative cocktail party, presentation of the Charles Goodyear Lecture and the awarding of the Charles Goodyear Medal, and the divisional banquet. The technical papers ran the usual gamut of rubber technology and included four papers of Kel-F rubber, the new fluorocarbon elastomer, and one on Poly-FBA, the fluorine-containing polyacrylic rubber. Abstracts of all 34 papers appeared in our August, 1954, issue.

New 1954-55 Officers

One of the highlights of the meeting was, of course, the results of the recent letter-ballot on the new 1954-55 officers. In reporting these elections, Howard Cramer (Sharples Chemicals), chairman of the Tellers Committee, revealed that a record vote of over 1200 was recorded. The results were as follows: *Chairman,* John M. Ball (Midwest Rubber Reclaiming); *Vice-Chairman,* Arthur E. Juve (Goodrich); *Secretary,* A. M. Neal (DuPont); *Treasurer,* A. W. Oakleaf (Phillips Chemical). John W. Snyder (Binney & Smith) was elected director-at-large.

In addition, seven district directors were elected to serve two-year terms as follows: *Akron,* L. M. Baker (General Tire); *Boston,* Walter S. Edsall (Goodyear); *Buffalo,* Howard E. Elden (Dunlop); *Chicago,* Bruce W. Hubbard (Ideal Roller); *Fort Wayne,* Daniel Reahard, Jr. (General Tire); *Los Angeles,* Robert D. Abbott (R. D. Abbott Co.); *New York,* Joseph Breckley (Titanium Pigment).

Action at Business Meeting

The business meeting of the division was held on Thursday morning, September 16, with Chairman J. C. Walton (Bellofram Corp.) presiding. A minute of silence was first observed for three members who had passed on since the last meeting, namely, Harry Eckhardt (Lea Fabrics), H. Frecker (U. S. Rubber), and G. S. Hiers (Collins & Aikman). Mr. Hiers, a long time division member, died just a few days before the meeting, and an obituary will be found elsewhere in this issue.

Chairman Walton first announced that the finances of the division, recently audited by Ernst & Ernst, were in good condition. He revealed that the surplus funds of the division were approaching six figures and announced that by approval of both the Steering and Executive Committees, $60,000 of these funds have been put into a safekeeping account from which they can be withdrawn only by four signatures of presiding officers.

It was also announced that meeting dates through 1957 have been established, as follows: *Spring, 1955*—May 4-6, Sheraton-Cadillac Hotel, Detroit, Mich. (with James O'Reilly as Chairman of the Local Arrangements Committee); *Fall, 1955*—November 2-4, Bellevue-Stratford Hotel, Philadelphia, Penna. (with B. S. Garvey, Jr., as Chairman of the Local Arrangements Committee); *Spring, 1956* — May 16-18, Hotel Cleveland, Cleveland, Ohio; *Fall, 1956* — September 19-21, Chalfonte-Haddon Hall, Atlantic City, N. J.; *Spring, 1957*—May 15-17, Sheraton-Mount Royal Hotel, Montreal, Canada. The latter meeting will be held in conjunction with the Rubber Chemistry Division of the Chemical Institute of Canada.

John M. Ball
Rubber Division Chairman

RMA Contribution Received

Chairman Walton disclosed that a contribution had been received from the Rubber Manufacturers Association sufficient to guarantee the operation of the Rubber Library, housed at the University of Akron, through next March. He also revealed that a special plan had been devised which if approved and adopted by the Association, in cooperation with the division, would assure operation of the Library for the next five years. He commended the Library Committee, headed by B. S. Garvey, Jr. (Sharples Chemicals) as chairman, for the excellent work it has done

Some of the 210 members of the 25-Year Club who attended a luncheon meeting on September 15 are shown above.

Arthur E. Juve
New Division Vice-Chairman

to date in connection with the library. Reporting for the Membership Committee, John Hoesly (Goodyear), chairman, announced that at the last count the division had 2,299 regular members and 464 associate members.

A change in the by-laws was effected at the meeting. It was explained that although the membership of the Executive Committee now exceeds 20, largely because of the addition of sectional directors several years ago, the by-laws still provided that any action could be achieved by the approval of any seven members of the committee. Because of this situation, Calvin S. Yoran (Brown Rubber), Chairman of the By-Laws Revision Committee, proposed that the by-laws be changed so that official action could be taken only with the approval of a majority of members of the Executive Committee. This proposal rereived a unanimous vote. It was also voted to change required approval on the part of members of the Charles Goodyear Medal Committee from seven to a majority.

Mr. Walton also announced that the Executive Committee had reappointed A. M. Neal (DuPont), secretary of the division, as councillor to the parent society for another four-year term, with Calvin S. Yoran as an alternate, and that E. H. Krismann (DuPont), advertising manager of *Rubber Chemistry and Technology*, had been elected a member of the new permanent Finance Committee for a six-year term. Publication of the division's monograph on "Synthetic Rubber" was also announced. (A review of this monograph will be found in the Book Review Section of this issue).

Whitby Gives Goodyear Lecture

The 1954 Charles Goodyear Lecture was presented by Dr. G. Stafford Whitby, head of the Department of Rubber Research at the University of Akron since 1942 (whose retirement from that position was announced by the University on September 22), during the morning session on Thursday, September 16. Taking as his subject "Reflections on Rubber Research," Dr. Whitby said that on looking back over the years since he first became associated with the rubber industry the dominant reflection that came to him was that, with the incoming of synthetic rubber, the subject of rubber had entered the main stream of chemistry in a way and to an extent that did not prevail before, when the raw rubber used by the industry was restricted to the natural product.

Part of Chemical Manufacturing

According to Dr. Whitby, rubber has now become an integral and substantial part of the chemical manufacturing industry, and, more important, an essential part of polymer science. This branch of science, partly chemistry and partly physics, is in its early days. In the years ahead it will undoubtedly attain to much new insight into macromolecules and will develop many new techniques for their controlled preparation and their study—to all of which future rubber research will contribute and from which it will reap benefits. As a result of all this, rubber now more than ever offers to the researcher intellectual adventure and to the technologist greater scope and challenge.

The greater part of the address was devoted to a number of specific aspects of rubber and polymer research in which the lecturer had been specially interested. The question of the way in which plants synthesize rubber was discussed, and it was concluded that further investigation would probably show the biosynthesis of rubber to be so complex that an understanding of it, when achieved, was unlikely to point the way to a practical manufacturing process by which cis-polyisoprene could be made.

Urges Further Study

It was pointed out that our knowledge of the chemical character of the natural antioxidant in Hevea is very meager. It was urged that the subject merits further study and that such study might suggest lines along which useful, new non-nitrogenous antioxidants could be developed.

On the subject of the selection of Hevea trees, the speaker suggested that a thoroughgoing study of variation in the trees from the viewpoint of rubber and latex quality, not merely from the viewpoint of yield, was a logical line of effort for rubber-growing interests to follow.

In the course of polymer research new types of polymerization are being discovered. Dr. Whitby said that all such discoveries merit consideration by workers in the field of synthetic rubber, since some of them at least may suggest ways in which novel and improved elastomers can be developed.

New types of polymerization reviewed were popcorn, graft, and block polymerization. The speaker reported on the preparation of synthetic graft elastomers, and said that it was possible to reinforce butadiene-styrene rubbers by grafting onto them polyvinyl branches.

Some aspects of non-sulfur vulcanization were discussed. It was reported that neoprene can be vulcanized by bisthiol acids. In this case the cross-linking action does not depend on initial attack at the alpha-methylene group but on direct addition of the bifunctional reagent to the double bond.

Arthur M. Neal
Re-elected Division Secretary

Activities on the first day of the meeting, Wednesday, September 15, were launched with the holding of a luncheon-meeting by the 25-Year Club, with Bruce Silver (N. J. Zinc) acting as chairman. A record attendance of 210 was recorded at the luncheon.

After the new members had been invited to stand and take a bow, E. B. Curtis (Vanderbilt) went through the regular ritual of determining the oldest member present in point of service who had not been previously honored by the club. The money clip token was awarded to Frank Baker (Landers Corp.) who has had almost 46 years of continuous service in the rubber field. A. A. Glidden, formerly with Hood Rubber and now semi-retired, a previous award winner, was present at the luncheon. Mr. Glidden has seen 61 years of active duty in the field.

Next Luncheon Scheduled

The next luncheon of the club will be held during the Detroit meeting next spring, with Ed Kvet (Baldwin Rubber) presiding as chairman.

Amos W. Oakleaf
Rubber Division Treasurer

Some 650 members and guests attended the divisional banquet, held in the main ballroom of the Hotel Commodore on Thursday evening, September 16. The banquet was preceded by the annual Suppliers' Cooperative Cocktail Party, engineered by Mr. Curtis and Jack Hamilton (Binney & Smith). It is a pleasure to report that ample bar facilities were in evidence during the party and the hors d'oeuvres were plentiful. It should also be pointed out that this year's affair was run with surplus funds without additional requests being made to the suppliers.

Chairman Walton presided at the banquet and first expressed the thanks of the division to the entire membership of the Local Arrangements Committee. He then introduced the officers, directors and guests sitting at the head table, the latter including Dr. B. J. A. Martin of the Dunlop Rubber Co., Ltd., of England, who had previously presented a paper prepared by Dr. D. Parkinson and himself which covered the effects of factory milling procedures on the physical properties of rubber products. And then came a pleasant surprise.

Seward G. Byam (DuPont), past chairman of the Rubber Division and an ex officio member of the Executive Committee, was of course seated on the dais. Mr. Walton referred to the fact that after serving the division in various capacities for the past twenty-one consecutive years, including 14 years as advertising manager of *Rubber Chemistry and Technology*, several years as a councillor, and subsequently as vice-chairman and chairman, Mr. Byam was finally retiring from divisional activity, although his counsel will of course be sought from time to time. In appreciation of his many years of service to the division, Mr. Byam was presented with a 35 mm. camera and accessories. Caught completely by surprise, the best Mr. Byam could muster in an acceptance talk was "Thank You."

Harry L. Fisher, head of the Tlargi Rubber Technology Foundation and president of the American Chemical Society, was presented to the members and guests and made a short talk in which he stated that the American Chemical Society now includes 72,239 members.

Goodyear Medal Presented

Next on the schedule was the presentation of the Charles Goodyear Medal and Honorarium to Dr. Whitby. The first step in the presentation was a talk by Waldo L. Semon (Goodrich) on "G. S. Whitby—Scientist and Scholar." Dr. Semon reminded the audience of the many contributions made by the Goodyear Lecturer over the years since 1910, including his half-dozen books, dozen patents, over a hundred publications, and hundreds of government reports. His articles not only covered plantation rubber, testing of rubber, standardization of rubber, theory of rubber structure, synthetic rubber, and accelerators, but also articles on silver salts, antimony, asbestos, mining, chemotherapy, and a means for fortifying the flavor of maple syrup.

Dr. Semon carefully traced Dr. Whitby's career including his work with Sir Edward Thorpe, Sir Gilbert T. Morgan, and Dr. P. Schidrowitz. He told of his work in the East Indies, with McGill University in Canada, with the National Research Council of Canada, with the Department of Scientific and Industrial Research at Teddington, England, and finally with the University of Akron where he came in 1942 as Professor of Rubber Chemistry and was subsequently named Director of Rubber Research. He told of his art and painting hobbies, his intensive reading habits, and his continuing interest in trees of all kinds.

Shown above is the Certificate of Award of the Charles Goodyear Medal which was presented to Dr. G. S. Whitby.

In concluding his talk, Dr. Semon mentioned the most recent accomplishment of Dr. Whitby had actually been consummated during the meeting at which he was being honored, and then handed him one of the first copies of the monograph on "Synthetic Rubber" which was prepared under the auspices of the Rubber Division and of which Dr. Whitby was editor-in-chief. The Medalist was then presented to Chairman Walter by Mr. Byam and the medal was conferred by Mr. Walton. Dr. Whitby accepted the award with a gracious speech in which he stated that anything he accomplished beyond this point would be anti-climactic.

Following the presentation, an excellent variety show was staged, under the direction of Charles Peterson. Music before and during the banquet, as well as for the variety artists, was furnished by the "Continentals," under the direction of George Bohn.

Credit to Local Committee

The smooth and effective handling of all the innumerable details concerned with the New York meeting is directly traceable to the efforts expended by the Local Arrangements Committee, of which J. A. Breckley (Titanium Pigment) was chairman and G. N. Vacca (Bell Telephone Labs.) was vice-chairman. Chairmen of the various sub-committees included the following: *Banquet*, A. H. Eufer (Vanderbelt); *Finance*, A. J. Lang (Hardman); *Information*, J. Roy Keating (Binney & Smith); *Program*, C. W. Sweitzer (Columbian Carbon), *Publicity*, S. M. Martin, Jr. (Thiokol Chemical).

Others who assisted in various capacities included J. B. Barr (United Carbon), A. R. Lewis (Monsanto Chemical), H. C. Steffen (Columbian Carbon), L. C. Komar (Columbia Carbon), and M. E. Lerner (RUBBER AGE).

Seiberling Commuter Winter Tire

Tire engineers at the Seiberling Rubber Co., Akron, Ohio, have adapted the letter "S" to form the basic tread design for a new type of "silent" winter tire. Extensive tests show that the new tread pattern reduces road noise—long a problem with winter-type tires—to the sound range of conventional tires while providing effective "biting" action on snow, ice and wet pavement. Known as the "Commuter," the tire is now being sold by independent Seiberling dealers coast-to-coast, according to L. M. Seiberling, sales vice-president. Body construction of the tire is the same as the company's Safety tire, which, during tests earlier this year in Cleveland, Ohio, withstood the simulated shock of landing an F-86 Sabre Jet plane at 120 miles-per-hour. The Commuter features a pattern of the "S" type ribs placed back to back from the center of the tread to the shoulder. This causes the "letters" to support each other, reducing movement or shifting of the tread pattern during road contact, Mr. Seiberling said, and means more evenly-distributed tread wear and better traction than is possible with more flexible designs. Deep lugs have been placed on the tire shoulders to supplement the gripping action of the tread pattern and to provide added control against side-slipping on wet or icy pavements, he added. The Commuter is being produced in a full range of sizes in white or black sidewall constructions.

Vinylized Colors Available

Vinyl Products Division of the Claremont Pigment Dispersion Corp., Brooklyn, N. Y., has announced the availability of a wide range of standard pre-matched "Vinylized Colors" in such popular shades as town brown, mahogany and fawn. These materials are intended for extruders of vinyl shoe welting, upholstery gimp and luggage trim, and are said to be suited for easy incorporation into dry blend compounds by drum tumbling or proportioning meter attachments. With pre-dispersed Vinylized Colors, extruders can obtain color uniformity from batch to batch of finished product, on either single or twin screw equipment. Claremont maintains stocks of both its basic "DR" series and the newly matched shoe and upholstery colors at its Brooklyn warehouse.

Serves As Convention Host

U. S. Rubber Co., New York, N. Y., was host to the International Municipal Signal Association at the Lifeguard Ball, October 4, at the Traymore Hotel, Atlantic City, New Jersey, during the IMSA's convention. Howard Lanin, producer of shows of distinction, presented a minstrel show with three famed old time minstrel men in the cast.

UNITED RUBBER WORKERS HOLD ANNUAL CONVENTION IN BOSTON

The United Rubber Workers, C.I.O., at their 19th Annual Convention held recently in Boston, Mass., voted to hold conventions and elections of international officers every two years instead of every year as heretofore. Officers, headed by L. S. Buckmaster, president, were re-elected.

Mr. Buckmaster, in his convention keynote address, stated that during the present year, the union was tested rather severely when its attempt to do a creditable job of representing its members at the collective bargaining table was challenged by the "stubborn and unreasoning resistance of some of the larger employers in the rubber industry." He said the challenge was successfully met by making full use of the "moral and financial resources" of the whole organization.

The union president stated that he hoped that some valuable lessons have been learned from the strikes that occurred during the year. He said the lessons are:

(1) The present political climate favors the employer.

(2) The Taft-Hartley Act and other anti-labor legislation enacted by some states discourages collective bargaining.

(3) A strike cannot be conducted without enough money to relieve the distressed condition of union members.

Mr. Buckmaster stated that a good union is the best insurance the worker can have against a bad employer and the best guarantee that "a good employer stays good." He also criticized the Republican administration in Washington, saying labor has been pushed around in favor of big business and special interests.

He called for effective union political action because "it is a hopeless task to try to win a war on the economic front while losing most of the battles on the political front."

Archbishop Richard J. Cushing of Boston was the opening speaker. He praised the labor movement as a "positive way of fighting Communism by eliminating poverty and human misery."

Other speakers at the convention included Chester Bowles, former governor of Connecticut and one-time ambassador to India. Walter R. Reuther, C. I. O. president, also spoke.

MORTON SUCCEEDS WHITBY AT AKRON UNIVERSITY RUBBER DEPARTMENT

Dr. M. M. Morton

Dr. G. S. Whitby

The retirement of Dr. G. Stafford Whitby, head of the University of Akron's Department of Rubber Research since its inception in 1942, has been announced by the University's board of directors. Dr. Whitby was named professor emeritus of rubber chemistry in 1952, but remained as director of rubber research. He will continue to be available as a consultant in the department.

Dr. Maurice Morton who has been Dr. Whitby's assistant since 1948, succeeds him as head of the department which conducts basic research in rubber under contracts with governmental agencies. The Department of Rubber Research coordinates its activities with the University's teaching program, and Dr. Morton is also professor of polymer chemistry.

Both Drs. Whitby and Morton are graduates of McGill university in Montreal. Dr. Whitby was awarded the degrees of master of science and doctor of philosophy, and was honored with a Doctor of Science degree in 1939. Dr. Morton has received his bachelor of science and doctor of philosophy degrees from McGill University. He held positions as chief chemist for Johns-Manville Co., Quebec, and Congoleum Canada, Ltd., Montreal, and later served as professor of chemistry at Sir George Williams College in Montreal.

Dr. Whitby retires as one of the outstanding members of the University Administrative staff, and recently was acclaimed 1954 winner of the Charles Goodyear medal, highest award in rubber chemistry. Born in England, he attended the Royal College of Science at the University of London, and worked in the Far East in the early days of the rubber plantations.

He is credited with introducing factory techniques for handling rubber latex. The techniques were later adopted for the preparation of a uniform product. In 1920, his book on "Plantation Rubber and the Testing of Rubber" was published.

Dr. Whitby joined the McGill University faculty as assistant professor of chemistry, and in 1923, was promoted to full professor. Six years later, he was named director of the division of chemistry in the National Research Council of Canada laboratories in Ottawa. Dr. Whitby left Canada in 1939 and spent three years in England as director of the chemical research laboratory in the Department of Scientific and Industrial Research, before coming to Akron in 1942.

"Safetyliner" Tubeless Tire

B. F. Goodrich Co., Akron, Ohio, has announced a new tubeless tire to sell at the same price as a standard tire and tube combination. Called the "Safetyliner," the new tire incorporates several of the safety features of the premium-priced "Life-Saver" tubeless tire of the company's line. It has a different tread and does not contain a puncture sealant, Goodrich said. A patented inner liner, part of the tire itself, is designed to change dangerous bruise blowouts to "slowouts," permitting the driver to bring his car to a safe stop. In addition to being marketed for replacement use, the new tire line will be standard original equipment on many 1955 automobiles, the company stated.

American Chain Buys Bristol

American Chain and Cable Co., Bridgeport, Conn., has bought the Bristol Co., of Waterbury, Conn. American Chain said it had purchased virtually all of the 194,800 shares of outstanding stock in Bristol, which manufactures industrial instruments, including automatic mechanical and electronic controls. The purchase price was $7,600,000, approximately Bristol's book value. American Chain said it planned no changes in Bristol's management or personnel. The latter company has two branch factories and a Canadian subsidiary, the Bristol Co. of Canada, Ltd., at Toronto.

An index to Volume 75 of RUBBER AGE will be found on Pages 157 to 160 of this issue.

Low Temperature Plasticizers

The ability of nine commercially available plasticizers to keep nitrile rubber vulcanizates flexible at sub-zero temperatures is investigated in a recent report by the Army Ordnance Corps. Tests in circulating air and multiple cell ovens indicated that ester type plasticizers were most satisfactory from the standpoint of low-temperature flexibility and low volatile loss. The report gives detailed results of tests with each of the nine plasticizers chosen for investigation out of 65 screened. Base stock formula is included. PB 113733, "Low Temperature and Low Volatility Plasticizers for Use in Nitrile Rubber Vulcanizates" is 36 pages long and is available from the Publication Board Project, Library of Congress, Washington, D. C., for $2.50 in microfilm and $5.25 in photocopy.

NATURAL RUBBER BUREAU SEES GOOD FUTURE FOR RUBBER ROADS

The Natural Rubber Bureau, 1631 K Street, N. W., Washington 6, D. C., noted in a recent release that when it laid its first natural rubber pavement in this country five years ago, the term "rubber roads" was known to hardly any of the highway fraternity and none of the public. Today, the public is becoming more and more aware of rubber in highways, and "rubber roads" is part of the highway engineer's everyday language.

Even a year ago, the Bureau reports, a survey showed that rubber roads were known to just about 100% of the country's highway engineers and officials. A good many of those officials now not only know about rubber roads, they are testing them on their own highways and streets.

To show what has been taking place in rubber roads in recent years, the Bureau showed its new film entitled "Stretching Highway Dollars With Rubber Roads" at a special press meeting on September 23 at the Waldorf-Astoria Hotel in New York City. The new picture has been completely remade from the former film of the same title, and includes laboratory and road-laying scenes from this country and abroad which never before have been shown. The film is available for booking without charge on request to the Natural Rubber Bureau.

Starting with a firsthand experience report on rubber roads from one of the country's leading highway engineers, the film takes the viewer on a "how-to" trip through a plant in which rubber-asphalt is being mixed, and then to an actual job where the material is being laid.

English Laboratory Shown

The audience is also taken into an English laboratory and shown a variety of tests devised by English chemists and road engineers to prove the elasticity and continuing "aliveness" of asphalt combined with natural rubber. There are also firsthand visits to rubber roads in Malaya, South Africa, and England.

For the finale, the viewer is taken through the rubber road laboratory of the Natural Rubber Bureau, showing in close-up detail many of the unique tests—some of them exclusive with the Natural Rubber Bureau Research Laboratory—used by the Bureau in its continuing work with rubber paving.

The Bureau reports that 1954 has been by far the most successful year for rubber roads to date. So far this year over 30 communities have put down stretches of pavement incorporating natural rubber powder and asphalt. A good many more will be put down before the year is ended, the Bureau states.

Already over 30 states and three provinces of Canada are closely watching the long-wear, less-repair characteristics of rubber roads. They are finding—and their findings are said to be backed by over 3,000 laboratory experiments at the Natural Rubber Bureau Research Laboratory—that natural rubber roads are superior in four specific ways:

(1) *Cohesion*—Asphalt mixed with natural rubber powder indicates up to twice as much resistance to breaking as non-rubberized paving.

(2) *Elasticity*—Rubber roads bounce back with half the net distortion of non-rubber.

(3) *Climate*—Rubber roads last longer under extremes of hot and cold weather.

(4) *Stability*—Asphalt and natural rubber shows up to 12½% more strength under laboratory equivalents of traffic stress.

The sum total of these advantages, says the Bureau, is a road that gives every indication of lasting longer, with less repair. Translated into long-run results, this means a cheaper road—more for the taxpayer's dollar.

Adds 20% to Cost

Initially, the addition of the natural rubber powder adds approximately 20% only to the cost of the top laver using the natural rubber bituminous mix. Tests to date, in use and in the laboratory, indicate that the advantages of natural rubber pavement more than amortize this cost.

Once this has been proven to the definite satisfaction of the American highway official and engineer, natural rubber powder will become part of standard specifications for America's highways, the Natural Rubber Bureau believes.

"Vulcan 3, Vulcan 6 and Vulcan 9 in Cold GR-S" by T. D. Bolt is another in the series of Technical Service Laboratory Bulletins published by Godfrey L. Cabot, Inc., Cambridge, Mass. Ask for No. GD-9.

Chicago Educational Program

The Educational Committee of the Chicago Rubber Group has announced that its basic course in rubber compounding will once again be offered to all interested parties. A series of twenty-five lectures has been scheduled at the John Marshall Law School in Chicago, Ill. This is the second year that the course is being offered. The new series of lectures began on October 5. In addition to the twenty-five regular lectures, the group is also planning a series of six lectures of an advanced nature. Subjects such as sponge rubber compounding, tire compounding, footwear compounding and roll building are to be included. M. J. O'Connor of O'Connor & Choate, Inc., 333 North Michigan Ave., Chicago, Ill., has assumed the chairmanship of the Education Committee. A tuition fee of $50.00, including cost of textbook and field trips, has been set for the entire course.

Goodyear Sets Tire Record

Goodyear Tire & Rubber Co., Akron, Ohio, recently set what is said to be a new world's record for the rubber industry, when its 625,000,000th pneumatic tire—a "Deluxe Super-Cushion" passenger tire—rolled off the production line. Of new design, and only recently announced by the company, the tire is built primarily to hold air without a heavy tube-like liner or sealant. Goodyear officials and employees joined in hailing the firm's almost inconceivable new landmark of production. P. W. Litchfield, chairman of the board, was presented with the milestone tire.

TWO BANBURYS AND PLATFORM MOVED AS UNIT AT DUNLOP TIRE PLANT

During a recent rearrangement and modernization at the Buffalo, N. Y., tire plant of the Dunlop Tire & Rubber Co., two Banburys and platform were moved to a new location without dismantling. The Banburys and the platform were moved in toto to a new position a distance of 150 feet. The Banburys and platform weighed 325 tons as a unit. As far as is known, this is the first time Banburys have been moved with platform without dismantling and re-erection piece by piece. The unit move, as shown above, is estimated to have saved $70,000 compared to the piece by piece procedure and the installation of a new platform. Equally important, the time saved eliminated any loss of regular production. The work was conceived, engineered and supervised by a team of engineers from Hale and Kullgren, Inc.

CHICAGO HEARS SUTHERLAND ON AUTOMATIC PRESS CONTROL

The September 10th meeting of the Chicago Rubber Group held at the Furniture Club in Chicago, Ill., heard an interesting address by E. B. Sutherland, executive vice-president of Emmett Machine & Manufacturing, Inc., Akron, Ohio. Mr. Sutherland spoke on "An Approach to Automatic Control of Hydraulic Molding Presses." Mr. Sutherland presented a discussion of the basic control problems in rubber molding processes and illustrated with slides some of the new ideas currently being put into operation. The increasing trend to centralized control systems was also discussed and illustrated.

The three basic problems of (a) timing only (b) timing with bumping and (c) timing with bumping and delay of high pressure were presented with illustrations of available equipment to perform those functions. These three problems were considered from three different approaches: (a) individual automatic control, (b) independent automatic controls combined into a central control panel, (c) individual controls integrated into a centralized coordinated control with elimination of much duplicity of control elements.

In considering that any press might be required to provide any of the three cycle control functions and in consideration of the possible economies, it was suggested that a standardized mounting plate would be a key factor if the various required controls could interchangeably mount on that plate and have quick plug-in electrical connections and quick air disconnect features. Such an arrangement was illustrated with the three types of controls which could in a matter of less than one minute, be moved from press to press as cycle specifications require.

Processing of Controls

The processing of these controls from the instrument control center to the press and back at completion of use not only makes possible but makes most convenient the checking, initialing, and dating of each instrument at each time of use to effect a real and efficient plan of preventive maintenance. The use of pushbutton type cycle set-up controls in such application makes possible the setting up of an automatic control program in less time than word of mouth instruction to the press operator and even improves its efficiency in the installation where runs are short and cycle changes are numerous.

A second approach to this same problem is to design the control into a standardized plug-in unit which can be readily mounted or dismounted at a central control panel. Each of the control units in this approach would be completely independent except as to their common mounting in the control panel. The same factors of control are available together with quick replacement for servicing or preventive maintenance as a spare unit would normally be a part of such an installation.

A third approach to these same problems would be the integrating of the numerous control elements into a single control center which would give almost complete independence of operation but would design many of the elements into a common section and eliminate much duplicity of parts together with corresponding reduction of maintenance potential. In such a unit it is possible to package the elements, which must be duplicated for each control, into a single plug-in box and to interconnect these plug-in boxes to a common panel which would include the elements where integration is practical.

On one such installation, a single synchronous motor provided the basic timing functions which would, in normal controls, have required fifty or seventy-five identical motors. In this approach to automation one side of the instrument is provided with signal lights indicating control functions of interest to supervisory personnel. The other control functions such as signal set-up elements and maintenance facilities are made available on the opposite side of the instrument where an instrument man could service any or all of the control equipment for the entire press room in an area uncrowded and convenient and where the equipment is operating under preferred conditions.

Such systems have been located more than two hundred feet from the farthest press and have at this date been built to service as many as twenty-four presses with a built in spare unit and pushbutton test station for checkout of any unit without interruption of production processes. A built-in parts box includes replacement parts for all predictable parts of maintenance.

As a final point of suggestion there was a discussion of a control system for an entire press room where there had been developed a safe and practical means of controlling the change time of the molds as well as the normal functions of the press. It was of interest that any of these approaches to automatic control could be accomplished at a cost comparable to the usual random application of automatic control. Many of the outlined suggestions could well apply to present installations as well as new projects, Mr. Sutherland concluded.

LANDERS CORPORATION ANNOUNCES SEVERAL EXECUTIVE APPOINTMENTS

J. P. Howland

J. L. Davison

W. W. Brown

John P. Howland has been elected to the newly-created position of executive vice-president of the Landers Corp. of Toledo, Ohio. In other advancements, James L. Davison was named general sales manager; William W. Brown, assistant general sales manager; Kenneth A. MacDonald was appointed an assistant purchasing agent and will continue as traffic manager, and Timothy Y. Hewlett, Jr., was appointed an assistant purchasing agent. Prior to joining Landers in 1940, Mr. Howland was identified with commercial banking in New York City for a period of twelve years. He was elected secretary of the Landers Corp. in 1941, named general sales manager in 1943 and made vice-president, general sales manager and a director in 1944. He is a graduate of Harvard University. Mr. Davison is an assistant vice-president of the firm and prior to his new appointment had been divisional sales manager. Mr. Davison attended McGill University and joined Landers in 1946. Mr. Brown joined Landers upon his graduation from Washington & Lee University in 1939. After a period of military service he returned to the company as assistant sales supervisor and was made assistant vice-president in February, 1953. Mr. MacDonald joined Landers in 1947 as assistant to the traffic manager and was named traffic manager in 1948. Mr. Hewlett joined Landers in January of this year and has been undergoing management training.

Detroit Announces Fall Semester

The Detroit Rubber and Plastics Group, in cooperation with Wayne University, Detroit, Mich., has announced its fall semester courses in practical rubber technology. Course I is designed for beginning compounders, sales personnel, purchasing agents, specification writers, students and others who are interested in broadening their knowledge of the rubber industry. S. R. Schaffer of the U. S. Rubber Co. is instructor. Course II is designed for everyday compounders and other rubber technologists. R. W. Malcolmson of E. I. du Pont de Nemours & Co., Inc., is instructor of this course. The fall semester started in mid-September and continues on a once-a-week basis for sixteen weeks.

An index to Volume 75 of RUBBER AGE will be found on Pages 157 to 160 of this issue.

SPEAKS ON CONVEYOR BELTS AT ASME MILWAUKEE MEETING

New, improved types of conveyor belts "made to order" for specific jobs, are answering industry's growing demand for economical transportation of mass materials, members of the American Society of Mechanical Engineers were told at their recent meeting in Milwaukee, Wisc. Donald R. Scheu, field engineer for the B. F. Goodrich Co. Industrial Products Division, credited recent improvements in belt reinforcements, rubber and rubberlike materials and belt constructions for industry's rapidly expanding use of belt systems.

"Today we can build greater strength into belts than ever before," Mr. Scheu told the ASME members. "New, resilient synthetic fibers, while less bulky, result in stronger woven fabrics that make belts more resistant to impact shock. Belts using high tensile strength steel cables now can be designed to operate at tensions as great as 3,000 pounds per inch of belt width." Such belts, Mr. Scheu said, permit single conveyor flights where multiple flights of textile belts were once required. Improved plant operation results from the reduction in transfer points, machinery and attendant labor.

Mr. Scheu said that new chemical materials have been developed as additives to rubber cover compounds which improve cover resistance to sunlight aging and ozone deterioration. These developments have helped promote the use of outdoor conveyors which, for practical reasons, cannot be enclosed.

Other recent conveyor belt engineering advances outlined by Mr. Scheu included: a special rubber cover to withstand abrasion from high-speed abrasive particles; fire-resistant polyvinyl and neoprene compounds for belts that do not support combustion; new fiber-glass and asbestos fabrics, together with new heat-resistant rubber compounds, for improved service life of hot material belts; special rubber belt covers that resist acids, alkalies, salts, chemical vapors and other deteriorating materials.

Mr. Scheu credited the textile industry with contributing toward improvement of conveyor belts by providing facilities for manufacture of wider and longer fabrics. Continuous belting, up to 1,000 feet in length without transverse seams, is now being produced regularly as a result of increased fabric lengths.

Wyandotte Appoints Zorn

F. M. Zorn has been appointed a technical service representative in the Michigan Alkali Division of the Wyandotte Chemicals Corp., Wyandotte, Mich. A chemical engineering graduate of the Case Institute of Technology, where he received an M. S. degree, Mr. Zorn has been with Wyandotte for fifteen years. In his new position, he will assist Wyandotte's customers in the use and handling of Michigan Alkali Division Products. Mr. Zorn is a member of the American Institute of Chemical Engineers, the American Chemical Society and the Professional Chapter of Alpha Chi Sigma.

THE UNITED WAY

Goodyear Buys Brazilian Site

An 11,000-acre site for a rubber plantation has been purchased by the Goodyear Tire & Rubber Co. in Brazil near the Amazon River gateway to world trade. The company stated that the new plantation will be developed gradually and the first plantings will be experimental. The experience the company has had in developing blight-resistant and high yielding rubber trees on its 2,500-acre Costa Rica plantation, which was established in 1935, will be helpful in the new Western Hemisphere venture, company officials stated. The work will be carried on in full cooperation with the Brazilian government, which is attempting to establish its own rubber growing industry. Brazil has encountered severe rubber shortages in recent years, due to sharp increase in usage. The new plantation will eventually become a supplier for the company's Sao Paulo tire plant and may stimulate additional plantings which would help provide a "living stockpile" of rubber readily accessible to the United States in times of emergency. The 11,000-acre tract is undeveloped jungleland, 60 miles east of Belem, which is situated on the mouth of the Amazon. Called Marathon Estate, after one of Goodyear's tire products, the plantation is the first acquired by the company in almost 20 years.

Advastab PS-38 Vinyl Stabilizer

Advance Solvents & Chemical Corp., 245 Fifth Avenue, New York 16, N. Y., has introduced "Advastab PS-38," a new product designed to effectively stabilize against heat and light degradation clear vinyl compounds possessing fire-resistant properties. In clear liquid form and of organic composition, the material has a specific gravity of 1.02 at 25°C. It has G (Gardner scale) viscosity at 25°C., and a refractive index of 1.490 at the same temperature. It has a slight odor and is 1 GH in color. Advastab PS-38 has been found to function with the greatest efficiency in this suggested mixture of plasticizers and stabilizers to produce a clear, flame-resistant stock. Since it has plasticizing action, the company states, the product replaces equal parts of the primary plasticizer for lower cost stabilization.

An index to Volume 75 of RUBBER AGE will be found on Pages 157 to 160 of this issue.

USE OF HYCAR LATEX IN FABRICS REPORTED IN INTERESTING PAPER

A method of producing fabrics with excellent wearing qualities and wrinkle resistance was announced at the 33rd National Convention of the American Association of Textile Chemists and Colorists by Dr. Edward Abrams, head of the textile section of Southern Research Institute, and Neil H. Sherwood, senior development engineer of the B. F. Goodrich Chemical Co., Cleveland, Ohio.

In a joint paper, Messrs. Abrams and Sherwood reported that fabrics finished with blends of synthetic resins and Hycar latices exhibit markedly superior strength and abrasion resistance when compared with fabrics treated with resins alone. Furthermore, this improvement in wearing qualities is obtained with no significant loss in the outstanding wrinkle resistance imparted by the resins.

Much work has been done, in recent years, on the application of synthetic resins, particularly urea-formaldehyde and melamine-formaldehyde, as textile finishes for wrinkle resistance and shrinkage control. However, resin finishes tend to impair the wearing qualities of fabrics.

To overcome this deficiency, the authors investigated several polymeric latices as modifiers for the synthetic resins in textile finishing operations. The investigation of polymeric latices was prompted by the remarkable results obtained by the use of butadiene-acrylonitrile latices as warp-sizes and finishes for cotton and other fabrics.

The authors reported that, of the materials tested, Hycar 1561, a butadiene-acrylonitrile latex, and Hycar 4501, a polyacrylic ester, are the most effective modifiers of resins for textile finishing. Both Hycar latices are products of Goodrich Chemical.

In their work, Mr. Abrams and Mr. Sherwood found that chambray treated with a blend of 70 parts (dry weight) Hycar 1561 and 30 parts urea-formaldehyde resin has ten times the abrasion resistance and almost twice the breaking strength of chambray treated with U-F resin alone. The wrinkle recovery of the Hycar/U-F treated fabric is 1½ times that of untreated chambray and only slightly less than that of fabric finished with a standard U-F resin formulation. Comparable results were obtained with Hycar 4501.

Akron Group Elects Officers

The Akron Rubber Group has announced its new officers and committee chairmen for the coming year, terms to expire June 30, 1955. New officers of the group are: *Chairman,* V. L. Peterson (Goodyear); *Vice-Chairman,* K. R. Garvick (Mansfield Tire); *Secretary,* H. M. Brubaker (Witco); *Treasurer,* H. D. Harrington (General Tire). R. H. Marston, Jr. (Binney & Smith) is past-chairman of the group. Members named as committee chairmen are: *Program,* R. P. Whipple (Firestone); *Membership and Attendance,* T. R. Brown (Goodrich); *Ticket,* S. C. Nicol; *Publicity,* H. W. Catt (Goodrich).

ASME RUBBER DIVISION PLANS INTERESTING DECEMBER MEETING

The Rubber and Plastics Division of the American Society of Mechanical Engineers will hold its annual meeting on December 2 and 3 at the Hotel Statler in New York City in conjunction with the annual meeting of the parent society. An interesting program of papers has been prepared for the two-day meeting, with morning and afternoon sessions scheduled for each day. The sessions on December 2 constitute a "Vibration and Impact Isolator" symposium.

A. W. McKaig (Fabreeka Products) will serve as chairman of the session on Thursday morning, December 2, with J. F. Downie-Smith (Iowa State College), as vice-chairman. Papers to be presented at the morning session include:

"The Effect of Pulse Shape on Simple Systems Under Impulsive Loading" by Charles E. Crede, Barry Corp., Watertown, Mass.

"Evaluation of Shock Mounts" by J. Paul Walsh and Ralph F. Blake, Naval Research Laboratories, Anacostia, D. C.

"Impact and Longitudinal Wave Transmission" by Edward L. Smith, Raymond Concrete Pile Co., New York, N. Y.

The session on Thursday afternoon will feature three papers and J. P. Den Hartog (Massachusetts Institute of Technology) will act as chairman with Irwin Vigness (Naval Research Laboratories), as vice-chairman. Papers scheduled for this session include:

"Experimental Techniques for Predicting Dynamic Properties of Rubber" by Richard C. Dove and Glenn Murphy, Iowa State College, Ames, Iowa.

"Vibration and Shock Control: A Design Tool" by George H. Billman, Lord Manufacturing Co., Erie, Penna.

"Selected Rubber Literature References for the Mechanical Engineer—June, 1953-August, 1954" by Lillian Sutter, University of Akron, Akron, Ohio and Leora Straka, Goodyear Tire & Rubber Co., Akron, Ohio.

The morning and afternoon sessions on Friday, December 3 will be a symposium on "Engineering Properties of Plastics". C. H. Adams (Monsanto) will serve as chairman of the morning session, with George Williams (Bell Telephone Laboratories) as vice-chairman. Papers scheduled for the morning session include:

"Precision Control of Injection Molding Pressure" by Gordon B. Thayer, Dow Chemical Co., Midland, Mich.

"Considerations in the Design of Plastic Structures for Light Weight" by C. H. Adams, Monsanto Chemical Co., Springfield, Mass., and W. N. Findley, Brown University, Providence, R. I.

"The Use of the Repeated Hysteresis Loop for the Evaluation of Reinforced Plastic Materials and Structures" by G. W. Bainton, Jr., General Electric Co., Schenectady, N. Y.

"Molding Reinforced Plastics with Low Cost Cores" by W. B. Wilkins, consulting engineer, Ridgewood, N. J.

The final session on Friday afternoon, December 3 will have A. C. Webber (DuPont) as chairman and C. R. Stock (American Cyanamid) as vice-chairman. Papers scheduled for presentation at this session include:

"Recognizing Applications for Reinforced Plastics" by R. W. Matlock, Zenith Plastics Co., Gardena, Calif.

"Plastic Covered Antennas Reduce Radio Interference" by W. A. Von Wald, Jr., Naval Research Laboratories, Anacosta, D. C.

"Selected Plastics Literature References for the Mechanical Engineer—June, 1953-August, 1954" by F. J. McGarry, Massachusetts Institute of Technology, Cambridge, Mass.

CORRIGALL SUCCEEDS SOMERVILLE AT VANDERBILT RUBBER DEPARTMENT

Dr. A. A. Somerville

J. S. Corrigall

Dr. Albert A. Somerville, vice-president and manager of the Rubber Department of the R. T. Vanderbilt Co., New York, N. Y., announced his retirement on September 13 after more than 35 years with the company. He will be succeeded as vice-president and manager of the Rubber Department by J. S. Corrigall, who has been with the firm for the past ten years. Dr. Somerville, with degrees from DePauw and Cornell Universities, joined the U. S. Rubber Co. in 1912. After a period in that company's research laboratory, he joined the Mechanical Goods Division and in this capacity visited and worked in 42 of the U. S. Rubber plants in existence at that time. On June 1, 1919, Dr. Somerville joined the R. T. Vanderbilt Co., and originated and developed what became known as the Rubber Department. Dr. Somerville originated and personally wrote the first "Vanderbilt Rubber Handbook" which is now in its 8th edition.

Mr. Corrigall attended Trinity College School, Port Hope, Canada, and McGill University in Montreal. He began work in the rubber industry in 1933 at the laboratory of the Dunlop Rubber Co. in Toronto. In 1939, he became chief chemist of the Cincinnati Rubber Manufacturing Co., Cincinnati, Ohio, and in 1944 joined the Thiokol Corp., Trenton, N. J., as New York sales representative. He has been with R. T. Vanderbilt for ten years, nine of them as sales representative in the New Jersey territory. In 1953, Mr. Corrigall was transferred to the New York office as assistant to Dr. Somerville, a position he held until his latest appointment. Mr. Corrigall takes over all of Dr. Somerville's responsibilities excepting those of the Food Department.

Named Assistant Chief Engineer

Farrel-Birmingham Co., Inc., Ansonia, Conn., has announced the promotion of Philip H. Dreissigacker to the position of assistant chief engineer. Mr. Dreissigacker first joined the company in 1937 following his graduation from Massachusetts Institute of Technology with a B.S. degree in mechanical engineering. After service in the Army during World War II, he returned to the company as a machine designer and, in 1952, was appointed division engineer of the Sugar Mill Machinery Division.

Magennis Succeeds Cameron

F. T. Magennis, who, for ten years has been vice-president and assistant general manager of the Goodyear Tire & Rubber Export Co., has been named vice-president and general manager succeeding A. G. Cameron, who recently retired. Mr. Cameron will continue with the company in an advisory capacity, retaining the title of vice-president in the export company and in Goodyear Foreign Operations, Inc. He will also continue as a member of the board of directors and the Executive Operating Committee of the parent company and will continue his positions on the directorates of the National Foreign Trade Council and the U. S. Council of the U. S. Chamber of Commerce. He will also continue his membership on the Advisory Committee of the U. S. Department of Commerce. Mr. Cameron joined Goodyear in 1913 and has been in the Export Division since 1919. Mr. Magennis has been with Goodyear since 1917. He attended the University of Akron and is a graduate of the University of Michigan. He was recently awarded the French Legion of Honor for his outstanding work with the International Road Federation, of which he is chairman of the board.

U.S. RUBBER ANNOUNCES PLANS FOR NEW N.J. RESEARCH CENTER

U. S. Rubber Co., New York, N. Y., has announced plans for its new research center to be built in Preakness, Wayne Township, N. J. It is expected that ground for the $4,000,000 center will be broken in the fall and occupancy will take place early in 1956. The center will be devoted to research and development in the fields of rubber, chemicals, textiles and plastics.

The company's present research activities, now conducted in its laboratories in Passaic, N. J., will be transferred to the new location. Nearly 400 persons, many of whom live in Wayne Township or its environs, will be employed at the new research center.

U. S. Rubber's new research center will consist of three principal buildings, as shown in the accompanying illustration: a main laboratory with 90,500 square feet of floor area, an experimental laboratory with an area of 35,000 square feet, and a chemical engineering laboratory with 8,500 square feet.

The arrangement and architecture of the buildings will suggest a university campus in appearance. The company believes that the best research and development work can be done in such an atmosphere. The area will be naturally landscaped by the many tall trees now growing on the property.

The buildings are designed to be modern and simple in style and will present a long, low appearance. Both the main building and the experimental laboratory will be two stories in height, while the chemical engineering laboratory will have a second story over a portion of the area. There will be a basement underneath the main building. Viewed from the air, the main building will look somewhat like a huge "Z."

The exterior of the main building will be brick with stone facing. The experimental laboratory will have brick on the lower part of the structure with a lightweight, non-masonry material on the upper portion. The chemical engineering laboratory will have a brick facing for the first story and the same non-masonry, lightweight material on the second story.

The firm of Shreve, Lamb and Harmon Associates of New York designed the new research center. Construction contracts will not be let until the preliminary engineering has been completed.

Dow Building Styrofoam Plant

Construction of new facilities for the production of "Styrofoam," an expanded, lightweight, multicellular plastic, is now under way at the Allyn's Point (Conn.) Division of the Dow Chemical Co. The plant represents an expansion move to supplement production facilities at Dow's headquarters in Midland, Mich. The Connecticut location was selected to make Styrofoam readily available to East Coast markets. The new facilities will be under the operating supervision of Dr. William H. Schuette, manager of plastics production, and Kenneth E. Stober, manager of the Allyn's Point Division.

Introduces Three New Products

Marbon Corp., Gary, Ind., has introduced three new products into its family of adhesives and rubber-reinforcing resins. The first of these is the reinforcing resin Marbon 8000-A. Priced in the same quantity bracket as Marbon 8000, Marbon 8000-A has a fluxing temperature 20 to 25°F. lower. The bulk of Marbon 8000-A is 15 to 20% lower than that of 8000. Vulcanized stocks containing 8000-A are lighter in color than 8000, and compare well to any competitive resin in this respect, the company states. The physical properties of compounds containing 8000-A are equivalent to those containing 8000 in all respects, and none of the quality features of 8000 have been sacrificed in 8000-A.

The company has also introduced "Ty-Ply UP" and "Ty-Ply RC" for the vulcanized bonding of rubbers to metals. UP is a universal primer for metals, which in combination with RC offers a dependable two-coat adhesive system for obtaining high-strength vulcanized bonds of natural rubber and GR-S compounds, and certain Buna N stocks. UP alone, as a single coat adhesive, is also an effective bonding agent for neoprene.

Begins Chloromethane Production

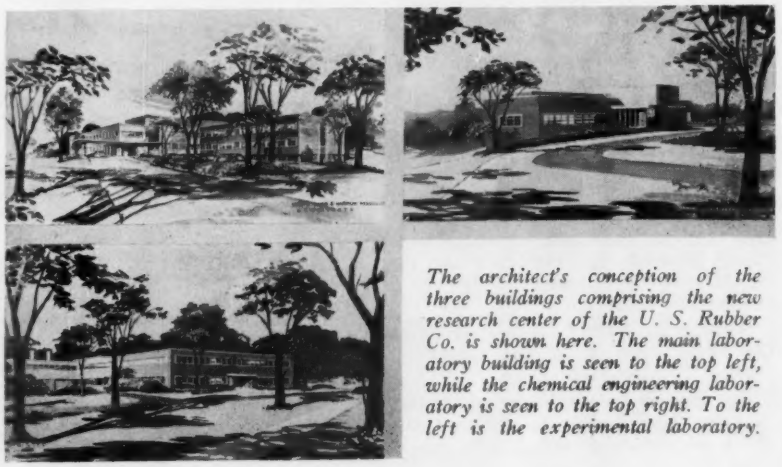
Solvay Process Division, Allied Chemical & Dye Corp., New York, N. Y., has announced the start-up of production of chloromethane at its plant in Moundsville, West Va. The new plant, which has been under construction for over a year, will produce methyl chloride, methylene chloride, chloroform and carbon tetrachloride. Methyl chloride will be sold in tank car lots, f.o.b. Moundsville, freight equalized with recognized producing points. Methylene chloride, chloroform and carbon tetrachloride are being offered on a delivered price basis. These products may be obtained in drums or in tank car quantities. In addition to its four new products, Solvay has been producing chlorine and caustic soda at Moundsville since last December, and is now also making by-product muriatic acid and anhydrous hydrogen chloride at that location.

Carwin Diisocyanates Available

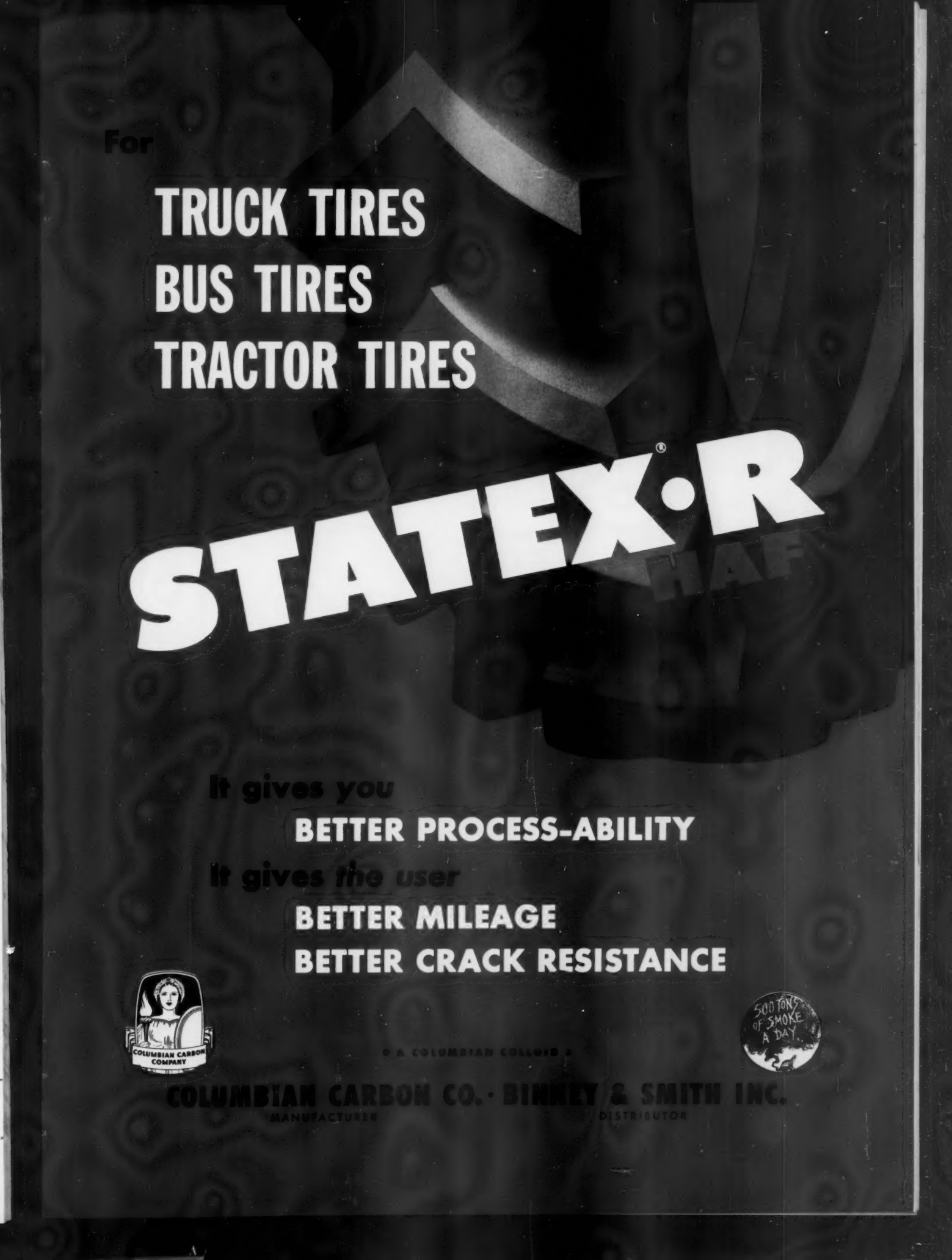
Carwin Co., North Haven, Conn., has announced the availability of a new class of diisocyanates. Two products now in semi-commercial production are TODI (bitolylene diisocyanate or 3,3′-dimethyl-4,4′-biphenylenediisocyanate), and DADI (dianisidine diisocyanate or 3,3′-dimethoxy-4,4′biphenylenediisocyanate). Drum quantities of these products are currently available. Both products are light yellow crystalline solids; TODI melts at 71-72°C. and DADI at 122°C. They are soluble in benzene, toluene, and chlorinated hydrocarbons. Inert solvents must be used with these products, since they readily react with substances having active hydrogen. Their ability to react with a wide variety of materials such as water, alcohols, phenols, mercaptans, amine, amides, imides, ureas, urethanes, carboxylic acids and acetoacetic ester, suggests many uses in the chemical process. In common with other isocyanates, reaction with carboxylic acids forms an amide link with the simultaneous generation of carbon dioxide. This characteristic can be utilized to produce rigid and flexible foams by reaction of the diisocyanate with appropriate polyester systems. Among other uses which have received attention are the manufacture of adhesives, fibers, and elastomers and resins for molding and coating applications; and the chemical modification of polyesters, drying oils, natural and synthetic fibers, paper, and leather.

Iron Oxide Pigments Introduced

Columbian Carbon Co., New York, N. Y., has introduced two new iron oxide color pigments: "Mapico Tan 15" and "Mapico Brown 422." Mapico Tan 15 is a soft pigmentary product of bright, easily dispersed tan color. It is believed that this pigment will find wide usage as a colorant because of the pleasing hue it gives to rubber. The company reports that tests on natural rubber, GR-S-25, and Neoprene GNA pigmented with Mapico Tan 15 have shown the compounds to have excellent aging characteristics. Mapico Brown 422 is light brown in color. Columbian Carbon products are distributed by the Binney & Smith Co., New York, N. Y.



The architect's conception of the three buildings comprising the new research center of the U. S. Rubber Co. is shown here. The main laboratory building is seen to the top left, while the chemical engineering laboratory is seen to the top right. To the left is the experimental laboratory.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SOUTHERN OHIO HEARS SERVAIS TALK ON COMPOUNDING SILICONE

The September 23rd meeting of the Southern Ohio Rubber Group held at the Engineer's Club of Dayton, Ohio, heard an interesting address by P. C. Servais, manager of the Silastic Section of the Product Engineering Laboratories, Dow Corning Corp., Midland, Mich. Mr. Servais spoke on "Compounding Silicone Rubber".

In his talk, the speaker observed that since silicone rubbers were first introduced, improvements in uniformity, handling properties, physical strength, high temperature stability, flexibility at low temperature and electrical properties have been made. Stocks of lower gravity and price are now available.

Basically, silicone rubbers are composed of four ingredients; polymers, fillers, additives and vulcanizing agents. Compounding of silicone rubbers is developing rapidly as new and improved versions of these ingredients are becoming available and are being studied. Variations in the type and amount of these four ingredients produce silicone rubbers with a wide range of properties, he stated.

The polymer used determines to a great extent the handling characteristics, the thermal stability, the low temperature flexibility, the corona, ozone and weather resistance, the adhesiveness to organic materials, the solvent and oil-resistance and the vulcanizing ability of the compound. Variations in the organic side groups are possible and change polymer properties. Compounds flexible at —130°F. are produced by introducing phenyl groups. Vulcanization with sulfur is possible when vinyl groups are introduced into the polymer. Polymer size is important and can be varied to make fluid coating pastes or stiff extruding stocks.

Type of Filler Used

Both the type and the amount of filler used are responsible for the physical and electrical properties of the rubber. Many fillers have been tried. Most useful are those fillers that have heat stability, fine particle size, good electrical properties and are not harmful to the polymer or vulcanizing agent. Certain inorganic fillers meet all these requirements but fine, pure silicas are best. Carbon black is now suitable for use with sulfur vulcanizing polymers. Inorganic oxides are generally used as additives to lower compression set or as pigments for color coding.

Many vulcanizing agents have been evaluated. The strong organic oxidizing agents are most useful. Sulfur is the newest vulcanizing agent for silicone rubber polymers that contain unsaturated groups, Mr. Servais stated, Many new industrial and miltary uses are being found for these improved silicone rubbers, he concluded.

Manhattan Rubber Division of Raybestos-Manhattan, Inc., Passaic, N. J., has announced the publication of an entirely new edition of its catalog of rubber products for industry. Ask for Catalog 25-C.

Coming Events in the Rubber Industry

Oct. 15. Boston Rubber Group, Fall Meeting, Somerset Hotel, Boston, Mass.

Oct. 15. Philadelphia Rubber Group, Annual Dance, Manufacturers Country Club, Oreland, Penna.

Oct. 20. Washington Rubber Group, Annual Dinner and Dance, National Press Club, Washington, D. C.

Oct. 22. Akron Rubber Group, Joint Meeting with the Society of Plastics Engineers, Mayflower Hotel, Akron, Ohio.

Oct. 22. New York Rubber Group, Fall Meeting, Henry Hudson Hotel, New York, N. Y.

Nov. 3. Los Angeles Rubber Group, Statler Hotel, Los Angeles, Calif.

Nov. 5. Chicago Rubber Group, Furniture Club, Chicago, Ill.

Nov. 11. Northern California Rubber Group.

Nov. 12. Philadelphia Rubber Group, Dinner Meeting, Poor Richard Club, Philadelphia, Penna.

Nov. 17. Washington Rubber Group.

Nov. 18. Rhode Island Rubber Club, Fall Meeting, Metacomet Golf Club, East Providence, R. I.

Dec. 2. Fort Wayne Rubber and Plastics Group.

Dec. 3. Los Angeles Rubber Group, Xmas Party, Ambassador Hotel, Los Angeles, Calif.

Dec. 8. Buffalo Rubber Group, Xmas Party, Buffalo Trap and Field Club, Williamsville, N. Y.

Dec. 9. Northern California Rubber Group.

Dec. 10. Boston Rubber Group, Xmas Party, Hotel Somerset, Boston, Mass.

Dec. 10. Detroit Rubber & Plastics Group, Xmas Party, Sheraton Cadillac Hotel, Detroit, Mich.

Dec. 10. New York Rubber Group, Xmas Party, Henry Hudson Hotel, New York, N. Y.

Dec. 17. Chicago Rubber Group, Xmas Party, Morrison Hotel, Chicago, Ill.

Dec. 18. Southern Ohio Rubber Group, Xmas Party.

Jan. 28, 1955. Akron Rubber Group, Winter Meeting, Mayflower Hotel, Akron, Ohio.

Feb. 18, 1955. Chicago Rubber Group, Furniture Club, Chicago, Ill.

Mar. 18, 1955. Chicago Rubber Group, Furniture Club, Chicago, Ill.

Apr. 1, 1955. Akron Rubber Group, Spring Meeting, Mayflower Hotel, Akron, Ohio.

Apr. 29, 1955. Chicago Rubber Group, Furniture Club, Chicago, Ill.

May 4-6, 1955. Division of Rubber Chemistry, A.C.S., Spring Meeting, Sheraton-Cadillac Hotel, Detroit, Mich.

June 17, 1955. Akron Rubber Group, Summer Outing, Firestone Country Club.

Acquires Nuodex Common Stock

Heyden Chemical Corp., New York, N. Y., has entered into a contract to acquire all of the outstanding common stock of Nuodex Products, Inc., Elizabeth, N. J. Nuodex is a manufacturer of chemical additives for the plastics, paint and other chemical process industries. Nuodex will be operated as a separate division of Heyden under its present management, headed up by Arthur Munich as general manager and executive vice-president. Leo Roon, president of Nuodex Products, having reached retirement age, will withdraw from active participation in the business. Heyden officials stated that the acquisition of Nuodex Products is a logical step in the company's program of expansion.

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Expanding Bicycle Tire Output

Expansion of production is in prospect at the New Bedford, Mass., bicycle tire plant of the Goodyear Tire & Rubber Co., following the company's recent purchase of additional factory facilities in that city. Goodyear has bought the Fisk Cord Mills plant, adjoining its present factory. Not only will there be a marked increase in present output of the plant, but additional lines also will be added, company officials said. The nature of the new products was not announced. Goodyear's bicycle tire production has been centered in New Bedford for the past eight years. The factory there is said to turn out the largest number of bicycle tires of any single plant in the United States. The unit also produces bicycle tubes, camelback, repair materials and printers' supplies. The newly-acquired factory contains some 472,000 square feet of manufacturing space on three floors.

FORT WAYNE ELECTS OFFICERS; HEARS PAPER BY WERKENTHIN

The Fort Wayne Rubber and Plastics Group held its Fall Meeting on September 30 at the Hotel Van Orman, Fort Wayne, Ind. The meeting featured an election of officers for the 1954-55 season and a talk by T. A. Werkenthin, Head, Elastomer Branch, Research and Development Division, Bureau of Ships, Navy Department, Washington, D. C. Mr. Werkenthin spoke on "Some Elastomer Applications Aboard Naval Vessels." The following members were elected to office for the new season:

Chairman, Howard C. Rapp (Belden Mfg.); *Vice-Chairman,* Jack L. Carlson (Paranite Wire & Cable); *Secretary-Treasurer,* Richard W. Black (General Tire). Members elected to the board of directors include: Chester P. Carpenter, Sr. (Western Rubber), Daniel Reahard, Jr. (General Tire), Hugh R. Tobey (U.S. Rubber), M. J. O'Connor (O'Connor & Co.), John F. Stiff (Binney & Smith), Robert Hartman (Monsanto).

The following members were named to the committees noted: *Membership,* S. F. Choate (Tumpeer Chemical), E. L. Davis, John Lawless (DuPont), Charles Aust (Goshen Rubber), T. C. Brown (Sheller Mfg.), and Dan Hotaling (Colonial Rubber); *Menu,* Earl B. Gottschalk (Paranite Wire & Cable); *Program,* R. C. Knapp (U. S. Rubber), Howard Ling (Naugatuck Chemical), C. E. Jackson (Essex Wire), and H. J. Baker (U. S. Rubber). *Ticket,* John Dixon, Jr. (Anaconda Wire, F. C. Korte (Korte Paper), and G. R. Gonyer (Farrel-Birmingham); *Publicity,* Roger Hickernell (Monroe Auto Equipment), George Darsie (General Electric), A. R. Brandt (Asbestos Mfg.) and Charles Collins (General Tire).

Mr. Werkenthin's talk was similar to others he has delivered before various other rubber groups. He touched upon the quantity of rubber used aboard ship and discussed such subjects as underwater coatings and protective coverings, deck coatings, interior decking such as matting, calking compounds and submarine battery compartment lining.

He also discussed propeller shaft covering and coating, water lubricated main propulsion bearings, shock absorption and noise attenuation mounts, expansion joints, watertight and airtight door and hatch gaskets, hose, life saving equipment and special rubber applications, such as radio and radar parts, underwater swim suits, safety equipment, etc.

Retarder TCM-25 Announced

Binney & Smith Co., New York, N. Y., has announced the availability of "Retarder TCM-25," a new, non-toxic retarder which is 25% trichloromelamine and 75% blanc fixe. The company states that preliminary work in both natural and synthetic rubbers using "Statex 125" (SAF) indicated that 0.5 part of Retarder TCM-25 provides adequate protection against scorch. It also indicated that higher concentrations impart even greater scorch resistance if extreme processing conditions demand additional safety.

25-Year Club Eligibility

The 25-Year Club of the Division of Rubber Chemistry, American Chemical Society, suggests that anyone completing 25 years in the rubber industry should register his name and the date he entered the industry with Earl B. Busenberg, Reclaimed Rubber Division, B. F. Goodrich Co., 500 South Main St., Akron 8, Ohio. Mr. Busenberg has been acting as secretary of the 25-Year Club and he is keeping a roster of all members and the date each started in the rubber industry.

ONTARIO RUBBER SECTION HOLDS 7th ANNUAL GOLF TOURNAMENT

The Ontario Rubber Section of the Chemical Institute of Canada held its Seventh Annual Golf Tournament at the Grand River Golf and Country Club, Kitchener, Ontario, Canada, on September 11. Approximately 80 members participated in the golf tournament while ninety were present for dinner. H. R. Pletch and R. Tartarian (Goodrich) arranged foursomes at the tee. Ernie Kent (Canada Wire & Cable) and Carl Croakman (Binney & Smith) were in charge of the tournament prizes, handicaps, etc. Handicaps were assigned on the basis of the Atlantic system.

S. Murray, last year's winner of the Canada Carbon Trophy, was presented with a permanent replica of the large trophy. The winner of this year's tournamen was Carl Croakman with a low gross of 79. Second low gross with a score of 81 was presented to W. Dixon. D. Bradley (Dominion Rubber) and R. Hoddle (Kaufman Rubber) took third low gross with a score of 82.

Low net winner was R. Hoddle with a score of 75. Garnet Dixon took second low net while Dean Bregman (Goodrich) took third low net. The best-dressed golfer award went to R. Gorrie (Delacour-Gorrie) for his ensemble which was set off by powder blue shorts. Mr. Pletch and Mr. Croakman presented the prizes.

Merge West Coast Operations

West Coast operations of the Quaker Rubber Corp., Philadelphia, Penna., and its recent acquisition, Pioneer Rubber Mills, of Pittsburg, Calif., have been merged under the name of Quaker Pioneer Rubber Mills, Division of H. K. Porter Co., Inc. Quaker Pioneer Rubber Mills will handle all the sales, manufacturing and service operations of both companies in ten western states. The Pioneer and Quaker sales organizations will be combined in the east and operated under the Quaker Rubber Corp.

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AKRON POLYMER LECTURE GROUP ANNOUNCES 1954-55 PROGRAM

The Akron Polymer Lecture Group has announced a program of eight lectures by outstanding speakers for the 1954-55 season. The series opened on September 24 at the University of Akron, site of all the meetings. Dr. Arthur M. Bueche (G-E) delivered a paper on "Radiation Effects on Polymers." Other scheduled speakers and their subjects are:

October 15—"Inorganic Polymers" by Professor Anton B. Burg (University of Southern California).

November 5—"Abrasion of Butyl Rubber" by Dr. R. L. Zapp (Standard Oil Development).

December 3—"Adsorption of Chain Molecules" by Professor Robert Simha (New York University).

January 7—"Methyl Radical Affinities" by Professor Michael Szwarc (State University of New York).

February 4—"Rheology of Concentrated Polymer Solutions" by Dr. Thomas W. DeWitt (Mellon Institute).

March 4—"Epoxy Resins" by Dr. Marko Wismer (Ciba Chemical).

April 15—"Chemistry of Silicic Acid" by Dr. Ralph K. Iler (DuPont).

This is the lecture group's eighth season. Current officers are: *Chairman,* E. E. Gruber (General Tire); *Vice-Chairman,* N. V. Seeger (Goodyear); *Secretary,* E. F. Kalafus (General Tire), and *Treasurer,* E. E. Hanson (Firestone). T. R. Paxton (Goodrich) is program chairman.

Representatives to the lecture group's committee include: F. C. Foster (Firestone), L. B. Wakefield (Firestone), A. E. Juve (Goodrich), F. F. Miller (Goodrich), J. O. Cole (Goodyear), J. F. Derry (Goodyear), C. E. Greene (General Tire), Maurice Morton (Akron University), H. L. Wunderly (Government Laboratories), and W. R. Dial (Columbia-Southern).

Connecticut Holds Annual Outing

The Ninth Annual Outing of the Connecticut Rubber Group was held on September 25 at Grassy Hill Park, Derby, Conn., with some 130 members and guests in attendance. The day featured competitions in softball, horseshoes, golf and egg throwing. Members also enjoyed a buffet style outing menu. Prizes were awarded to the winners of the various contests and many door prizes were also distributed. The Outing Committee consisted of James R. Boyle, chairman; David McKean, honorary chairman; Ward Fisher, treasurer, and Carl Larson, honorary treasurer. The following members were active on the committees named: *Softball,* Al Simon and Al Schorr; *Horseshoe,* Ed Butler and George Jerolman; *Golf,* George Sprague and John Brazee; *Egg Throwing,* Carl Larson and Ray Dudley; *Greeting,* Pat Rooney, John Tronson and Harry Gordon.

A catalog on its new line of light conveyor belts for food handling or light industrial use has been published by the B. F. Goodrich Company Industrial Products Division.

U.S. Rubber Promotes Cuthbertson

G. R. Cuthbertson

G. R. Cuthbertson has been appointed production manager for the Tire Division of the U. S. Rubber Co., and will make his headquarters in New York. Dr. Cuthbertson will be directly responsible for all Tire Division production in the Detroit, Los Angeles, Indianapolis, Eau Claire, Wisc., and Chicopee Falls, Mass., plants. After joining U. S. Rubber in 1936 as a research chemist, Dr. Cuthbertson advanced to several other positions, including assistant director of tire development at Detroit. He became assistant factory manager at Los Angeles in 1952, then factory manager. In 1953, he was appointed assistant production manager for the Tire Division. He holds an A.B. degree from William Jewell College and M.A. and Ph.D. degrees from Harvard University.

Polymekon Wax in Production

"Polymekon Wax," a newly developed chemical modification of microcrystalline wax, has recently been put into full-scale plant production at the Chanute, Kansas, refinery of the Warwick Wax Co., Inc., subsidiary of Sun Chemical Corp., Long Island City, N. Y. It is now available for immediate shipment in all quantities. The outstanding characteristic of Polymekon is its unusual ability to form films. For this reason, it is recommended as an additive in the manufacture of rubber compositions, as well as waxed paper, cartons and containers, varnishes, lacquers, printing inks, electrical insulating compounds and paste polishes.

Reppe Visits United States

Dr. Walter J. Reppe, noted West German chemist, is now on a visit to the United States. Dr. Reppe will visit several rubber plants in the United States and Canada during his stay. Under a grant from the Koppers Co., Dr. Reppe will be the Koppers Visiting Professor of Chemistry at Carnegie Institute of Technology. He will also speak to sections of the American Chemical Society and will address the National Chemical Exposition during his stay.

"Low Color" Vinyl Plasticizer

Barrett Division of Allied Chemical & Dye Corp., New York, N. Y., in a recent announcement states that new manufacturing techniques, coupled with the use of new facilities, have resulted in the production of plasticizers with lighter colors than believed possible up to this time. As a result of this development, maximum color specifications on two plasticizers have already been reduced by one-half, and Barrett expects that other plasticizers in its line will follow suit. "Low color" plasticizers are particularly important, the division points out, in the manufacture of transparent vinyl sheeting and tubing. Specifically, on Barrett's "Elastex 28-P Plasticizer" (DOP), color specifications indicate a reduction from 50 Hazen to 25 Hazen; while "Elastex 80-P Plasticizer" (dicapryl phthalate) has been reduced from 100 Hazen to 50 Hazen, maximum. Average production runs are well below the maximum figures. Barrett has also announced the commercial production of a new, low-cost plasticizer of special interest to makers of extruded items, plastisols and organosols. This new product is called "Elastex 40-P Plasticizer" and is intended expressly for manufacturers who are interested in reducing costs without materially affecting the quality of finished goods.

General Latex Building Plant

General Latex & Chemical Corp., Cambridge, Mass., is building a new plant at Ashland, Ohio, which is scheduled for completion by March 1, 1955. The new plant will round out the expansion program of the company, which is celebrating its twenty-fifth anniversary. The new facilities will cost approximately $300,000 and employ 60 to 75 persons. The 30,000 feet of floor space will be devoted to all phases of the company's business of supplying natural and synthetic rubber latex and resin compounds for industrial purposes. The facilities include a well-equipped laboratory for both development of new compounds and quality control testing. Ample bulk storage for natural, synthetic and prevulcanized latices has been provided and will supplement the company's present facilities at Boston, Baltimore, Dalton, Ga., and Montreal. The new facilities will serve the rubber, textile and automotive industries in Ohio, Indiana, Michigan, western Pennsylvania, Illinois and Wisconsin as well as the rest of the middle west.

Stricken Aboard Liner

William O'Neil, president of the General Tire & Rubber Co., Akron, Ohio, was taken ill aboard the liner Queen Elizabeth while on his way to Amsterdam, where he was to open a new company plant. When the vessel reached Southampton, England, Mr. O'Neil was removed to a local hospital where he continued to show improvement. Late reports indicated that Mr. O'Neil had resumed his trip to Amsterdam.

Tired of waiting for this copy of RUBBER AGE to reach your desk? Use the coupon on page 151.

Blair Joins Marbon Corp.

R. R. Blair

Richard R. Blair has joined the Marbon Corp., of Gary, Ind., as a technical sales representative to the rubber, paint and plastics industries in the Ohio, western Pennsylvania and eastern Michigan territory. Mr. Blair received his B. S. degree in chemistry from Franklin and Marshall College, and formerly was associated with the Columbia-Southern Chemical Corp., the Goodyear Tire & Rubber Co. and Rohm and Haas, in various technical capacities. His headquarters will be at 1163 Quimby Road, Wooster, Ohio.

Dow Corning 410 Gum

According to the Dow Corning Corp., Midland, Mich., rubbery parts with properties intermediate between those of silicone rubber and organic rubbers can now be produced by compounding with a new silicone polymer that can be vulcanized with sulfur and blended in any proportion with organic rubbers. Identified as Dow Corning 410 gum and available in commercial quantities, this new polymer can be blended with or applied as a protective coating to extend the serviceable temperature limits and the weather resistance of organic rubbers. Brittle points in the range of —70°F. and usefulness at temperatures up to 400°F. can be realized by proper blending, the company states. The physical properties of the blend will fill between those of high styrene silicone rubber and the organic rubber constituent. The new product can also be blended with oil-resistant rubbers to increase their stability in contact with hot oil. Such blending also markedly improves the ozone and weather-resistance of organic rubber, the company states.

New Brazilian Vinyl Plant

Construction of a new polyvinyl chloride plant has been completed in Sao Paulo, Brazil. The new plant has an initial capacity of 500,000 pounds a month. Part of Geon do Brasil, the new plant was constructed with Brazilian capital and American technical supervision. Eventually, the plant will be expanded to provide 1,000,000 pounds a month.

BRPRA REPORTS ON TECHNOLOGICAL ADVANCES MADE DURING 1953

A report covering its technical activities during 1953 has been issued by the British Rubber Producers' Research Association, Inc., which maintains headquarters at 19 Fenchurch St., London, E.C. 3, England. The review of 1953 activities covers both BRPRA and Rubber Technical Developments, Ltd.

The manifold activities of BRPRA are conveniently sectionalized in the report under seven basic headings. The report emphasizes, however, that this does not imply a division into self-contained groups; on the contrary, there is intergroup collaboration at all staff levels. Highlights of the report follow:

(1) Fundamental Chemistry—This group has continued investigations into the chemical basis of vulcanization and aging. While the practical implications of this work still lie largely in the future, an approach to current technology has been revealed.

The continuation of researches referred to in earlier reports has led to a general understanding of the nature of cross-links formed in a simple rubber-sulfur cure. It has been found that much of the combined sulfur is not in the desired cross-links, but in the intramolecular cyclic structures which contribute nothing to the network. Knowledge of the composition of these structures and their probable modes of formation now makes it possible to investigate the action of other compounding ingredients, particularly accelerators and zinc salts.

Effects of Amines

A study of the effects of amines—a chemical class to which many accelerators belong—has proved especially instructive. The role of the amine in controlling the nature of the cross-link has been determined. The structure so revealed is one which should confer good aging resistance. This work is being extended to vulcanizing agents containing the sulfur and amine in the same molecule and shows promise of novel developments.

The combination of oxygen with rubber hydrocarbon being well understood, attention has been given to the influence of the combined sulfur atoms in vulcanizates. Two approaches have been followed. In one, the oxidizabilities of a wide range of organic sulfides have been examined and reveal a clear differentiation between reactive and unreactive structures—a significant pointer to the type of sulfur linkages required to give good aging properties in vulcanizates.

Of further importance is the fact that in contrast to autocatalytic hydrocarbon oxidations, sulfur oxidations are auto-inhibitive, and the nature and mode of action of the inhibitors so produced are being studied. In the other approach, the interaction of sulfides with hydroperoxides similar to those found in oxidized raw rubber has been investigated. In the case of saturated mono-sulfides the mechanism of the interaction has been shown to involve no harmful molecular scission in either of the reactants. With certain unsaturated sulfides, however, molecular scission may represent the major part of the reaction.

In the related problem of ozone attack on vulcanizates, virtually nothing was known of the fate of the sulfide cross-links. It has now been found that a saturated mono-sulfide undergoes comparatively harmless oxidation, whereas a similar cross-link containing two or more atoms of sulfur suffers complete breakdown.

All aspects of this work reveal a marked difference in behavior of different types of sulfides and lend emphasis to the importance of vulcanization studies in seeking to determine the composition of vulcanizates and how to achieve the most advantageous incorporation of sulfur.

(2) Polymer Chemistry—Although rubber behaves chemically like simple substances having the same basic molecular unit, it has at the same time unique chemical and physical properties associated with its high polymeric nature which are the very basis of its commercial value. The recently constituted polymer chemistry section has devoted special attention to these important polymeric features.

The dominant practical feature of the oxidation processes referred to above is the simultaneous breakdown of the vulcanized network. Precise measurements of stress-relaxation under carefully controlled conditions and analysis of the data on the basis of elasticity theory permits these important changes to be investigated.

Initial experiments have been carried out using the simple network obtained by peroxide vulcanization and lead to the conclusion that at temperatures between 70° and 120°C., the cross-links, and not the part of the chains between cross-links, are the sites of bond rupture. Conventional sulfur vulcanizates show more complex behavior, probably reflecting the breaking of two, and in some cases three, types of cross-link, again revealing the interdependence of aging and vulcanization studies. This quantitative study of the degradation of various vulcanizates should provide a more rational basis for the routine evaluation of aging.

Plasticization Studies

Plasticization during cold milling results from mechanical rupture of the rubber into reactive fragments which stabilize themselves by combining with specific reagents, of which oxygen is a notable example. The behavior of various additives of technological interest has now been studied. Carbon black has been shown to react readily with the scission fragments to form initially a "tight" insoluble gel, which is gradually broken down on further milling.

Another significant observation is that the addition of a substance which is more reactive towards the scission fragments than the black (e.g., tetraphenyl hydrazine) inhibits rubber-black gel formation. The silica reinforcing fillers behave similarly, but non-reinforcing materials do not interact appreciably with rubber.

While it is premature to relate the physical phenomenon of reinforcement to these chemical effects, or even to imagine that they could be entirely responsible, the link is obvious and marks an important advance toward the understanding of this extremely important subject. Of great technical importance is the fact that milling can no longer be regarded merely as a convenient method of dispersing compounding ingredients, but as one which induces chemical reactions requiring just as much control as, say, vulcanization, if optimum properties are to be obtained in the product.

Natural rubber hydrocarbon is commonly regarded as a linear assembly of some 10,000 isoprene units. Recent studies show that this is an over-simplification and have significant technological consequences. As it issues from the tree, the hydrocarbon contains varying quantities, up to 20%, of cross-linked, sub-microscopic particles, termed microgel. While certain properties, such as solution viscosity, are insensitive to the presence of microgel, others, notably the hardness of the coagulated rubber, are greatly affected.

Research in this field has been greatly facilitated by work carried out in Malaya which has led to a simple and rapid method for separating from fresh latex within a few hours of tapping nearly all the hydrocarbon free from foreign substances. Secondary changes, such as may be induced by enzymatic degradation or ammoniation, are thus avoided. A quantitative procedure for removing the microgel portion of the hydrocarbon has also been devised.

Detailed Structure of Rubber

For some years, the relationship between the osmotic molecular-weight of raw rubber and the viscosity in solution has been in doubt. The detailed structure of rubber has now been shown to be the cause: soluble raw rubber does not consist solely of linear molecules, as hitherto believed, but contains branched structures, which on milling are preferentially broken down to yield a rubber which then behaves as a linear polymer. Knowledge such as this is essential to the control of the polymeric changes in rubber during processing and during storage under different conditions, and impinges directly on certain aspects of technical classification.

(3) Applied Chemistry—This group's main activities lie in the broad field of preparation and characterization of modified rubbers. It occupies a pivotal position in adapting laboratory results to practical ends.

The materials formed by grafting synthetic polymers on to natural rubber in latex have continued to be actively studied. Methyl methacrylate and styrene grafts have been prepared in pilot plant quantities, thus permitting fuller evaluation by the technology group and the distribution of samples to outside firms for independent examination.

Detailed studies of their formation and chemical properties have shown that the attached polymer chains are unexpectedly short (some twenty monomer units) and that attachment is critically dependent on the catalyst used. Thus, peroxides give

considerable attachment, azobis*iso*butyronitrile gives almost none, and persulfate systems have an intermediate effect.

Synthesis of graft polymers from several other monomers have been studied. Theoretical considerations based on results from model systems, as well as direct experiments with latex, reveal limits to the monomers which can be combined (e.g., vinyl acetate cannot), and further work has therefore been directed towards three-component systems. Improvement in certain properties, e.g., tear resistance, seems possible in this way.

Besides examining rubber modified by plastics, the effect of small quantities of rubber in various forms in materials such as polystyrene has also received attention. Some novel modified rubbers have been obtained by a new preparative technique, and a broader survey is being undertaken.

(4) Latex—A particularly wide field is covered by this group, extending from fundamental research into the nature and action of the natural anti-coagulants of latex to the practical technology of latex products.

The stability of latex as an emulsion depends upon the non-rubber constituents, of which the proteins form an important group. Working with freeze-dried fresh serum solids, prepared by the Rubber Research Institute of Malaya, the protein fraction has been separated and seven components identified. The main protein has been isolated in pure form and its properties, particularly the stabilization of emulsions, have been studied. Preliminary examination of other protein components has been started because of their association with enzyme reactions.

Gelling Characteristics of Latex

The gelling characteristics of latex foams, heat-sensitized by the addition of small amounts of polymeric glycols, have been further examined. The special features are the ease with which the gelation-temperature can be varied by simple changes in the composition or molecular weight of the glycol, and the high stability of the foams at room temperatures. The process has particular potential value for the manufacture of foam sheet by a continuous foaming procedure and is being tested industrially with encouraging results.

Polymer-modified latices open up new possibilities for foam products. The rubber is reinforced "internally" to a greater extent than by conventional methods, and hence should give greater load carrying capacity at a given density. Preliminary experiments confirm this, but there are certain technical difficulties which will have to be overcome for larger scale working.

Zinc oxide is a common compounding ingredient in most latex processes, but suffers the disadvantage of exerting a marked destabilizing effect on ammoniated latex. It has long been known that zinc oxide reacts with aqueous ammonia to form various complex zinc ammonium salts and "destabilization" was thought to be due to the interaction of these salts with the natural fatty acids present in the latex.

Plastics Production Growing

According to George C. Miller, president of the Bakelite Co., nearly 20 pounds of plastics will be produced for every man, woman and child in the United States in 1954 as national production reaches over 3,000,000,000 pounds per year. Consumption of plastics is nine times greater today for every family household in the U. S. than it was 15 years ago before World War II, Mr. Miller said. Vinyl resins accounted for a little more than one-sixth of the total plastics production in 1953, yet it is the tonnage-wise leader in the industry. It is also estimated that more than 10,000,000,000 square feet of polyethylene film will be made in 1954.

Two new features have now been brought to light. First, of the zinc complexes, only the di-amine compound reacts with fatty acids to form a precipitate, and secondly, the increased destabilization on increasing the temperature reflects a dehydration process of the zinc di-amine soap at the surface of the latex particles.

In association with the British Leather Manufacturers' Research Association, the value of rubber as a "filler" for leather has been further examined. By a simple "drumming" process, rubber particles of a suitably stabilized latex are forced into the leather, preferentially into the softer portions of the hide where they exert a desirable stiffening effect. This extends the useful cutting area of the hide and at the same time results in a marked increase in water impermeability. Five experimental tannery tests have demonstrated the practicability of the latex treatment for factory operation.

(5) Physics—Continued effort is being applied to defining accurately such important phenomena as abrasion, tear, reinforcement and general elastic behavior in precise physical terms rather than in the purely empirical and often subjective manner previously employed.

Reinforced Compounds

In contrast to the detailed understanding of the elastic properties of unfilled rubber vulcanizates, the distinctive characteristics of reinforced compounds have for long defied theoretical analysis. A notable advance has now been made with a new concept of the reinforced structure which has emerged from a fresh experimental approach.

The reinforced compound is envisaged as a mixture of hard, inextensible material and a soft elastic component. The elastic behavior is governed by the proportion of the two components, this being variable and depending on the history of the sample, and by the elastic properties of the soft material, which prove to be those of unfilled rubber. On this basis, a quantitative theory of wide generality has been developed; this has important impact on the testing of reinforced vulcanizates and on their use in engineering.

Increasing recognition of the dominant role of tearing processes in abrasion lends emphasis to the necessity for describing them more exactly. This objective has been brought much nearer by the discovery that the relationships between the energy required to propagate tear, the rate of tear, and the temperature, conform to a simple pattern which is applicable to different types of rubber, reinforced or non-reinforced.

A rational comparison of the resistance of different vulcanizates to tearing now becomes possible, and this advance, taken in conjunction with earlier discovery of a characteristic energy required for tear initiation, provides the basis for a detailed study of the structural factors controlling tear properties. A link between this work and surface abrasion has been established with the commencement of an experimental investigation into high speed tearing.

The scientific study of road surfacing materials and their performance under varying traffic loads has not progressed far enough to enable laboratory tests to be translated into a forecast of road wear; proof of the advantages to be derived from the incorporation of rubber in road surfacings must await the result of prolonged road trials.

Laying Experimental Roads

Accordingly, much of the activity in the cooperative investigation carried out in conjunction with the Britsh Rubber Development Board and the Road Research Laboratory is directed to the laying of experimental roads. During the past year, three full-scale road trials have been completed, relating to surface dressings, rolled asphalts, and mastic repairs for jointings, respectively. Each trial has involved the laying of a large number of rubberized and non-rubberized sections of road, and was carefully designed and controlled to furnish evidence as conclusive as possible.

A considerable period must elapse before the results of such work can be accurately assessed, but in the meantime, laboratory studies are being devoted to features which may be responsible for road failure. It is known that brittleness and deformity are major sources of road failure and that one or the other can be avoided by the choice of an appropriate bitumen; it now seems warrantable to suggest that both defects may be reduced simultaneously by the use of rubber. Further work is necessary to establish these improvements fully.

(6) Technology — Examples are given from the following three subdivisions into which the work now falls: (a) the development of better natural rubber compounds by the application of new technological techniques; (b) the evaluation of special or chemically modified rubbers, and (c) engineering applications of rubber —a recent addition.

All rubberlike substances lose their elasticity when cooled to a sufficiently low temperature. In the case of natural rubber, two distinct phenomena are encountered, representing the difference between short exposure at a very low temperature and

long exposure at an intermediate sub-zero temperature.

In the first, there is an immediate stiffening at cooling to —60°C., with brittleness at lower temperatures. In the other, there is a very much slower stiffening on prolonged storage at temperatures of the order of —20°C., this reflecting the change from a largely amorphous to a largely crystalline structure. Both effects have been studied, since one or other or both can be of major importance in different applications.

In connection with the first phenomenon, test methods have been devised, special low temperature plasticizers have been examined, and a theory of plasticizer-action developed which permits useful screening of potential plasticizers. Several practical low temperature compounds having unusually good properties have been produced. It is now possible to claim a better combination of low temperature performance and physical properties with these natural rubber compounds than can be obtained with any synthetic rubber.

The stiffening on crystallization and the associated density changes have been studied in raw and vulcanized rubber and various modified rubbers. The effects of compounding variations and of applied strain have been determined, and a theory evolved which suggests methods of modifying the rubber so as to retard or reduce crystallization.

Study of Modified Rubbers

Examination of modified rubbers constitutes a major technological project. Chemical combinations and/or intimate mixtures of rubber with five different polymers have been investigated, their properties ranging from soft rubbers, through harder reinforced elastomers to hard, brittle plastics. This complicates their evaluation, since they cannot be considered only as modified rubbers requiring special compounding and vulcanizing treatment, but must also be regarded as rigid thermo-plastics calling for processing and testing techniques not normally employed in rubber technology.

In collaboration with the British Rubber Development Board service trials of rubber pads for rail mountings have been put in hand at the request of the Eastern Region of British Railways. For use under normal types of track a new style of rubber pad designed to offer advantages in efficiency life and cost over earlier types has been developed and trials involving some thousands of pads has been started. A special problem arises in certain rail crossings where the geometry of the layout and the type of traffic leads to severe shock loading of the rails. One such crossing has been "floated" on rubber and after several months' service the performance is reported to be satisfactory.

(7) Service Departments—The Analytical, Spectroscopy, Technological, Testing and Engineering Sections have continued to provide essential and effective service for all the above groups and also as necessary for RTD. The Engineering Section, exercising its dual function of supervising general maintenance, the installation of new services and equipment and of designing and constructing new apparatus and machinery, has been able to render special assistance to RTD during the past year.

RTD Activities in 1953

With the assistance and cooperation of the Rubber Research Institute of Malaya, a pilot plant for the preparation of cyclized rubber was installed at the Sungei Buloh Experimental Station towards the end of 1952. Cyclized rubber masterbatches have been produced in bulk; a process has been developed for using skim latex as the source of the uncyclized component and production lots have been shipped to England.

This has necessitated a broad program of evaluation, from compounding research in collaboration with BRPRA—to determine the most favorable shoe soling composition—to samples for wearer trials. Results of these trials have been wholly encouraging and leave no doubt concerning the merits of cyclized rubber compounds in this application.

Commercial production of cyclized rubber under license commenced in Malaya during the year, and active interest was evident among other potential producers. To consolidate this interest, fresh plant is being sent to Malaya and a member of the RTD staff is being seconded to demonstrate the process under full-scale working conditions and to render assistance to other producing units.

Printers' rollers offer the most important potential outlet for fluid rubber. Rollers made at RTD are undergoing works trials, while fluid rubber has been supplied to several manufacturers for independent evaluation of the manufacturing process and performance.

Another promising outlet is in ebonites made from fluid rubber, which have similar properties to conventional products. Being easily made by pouring and setting they do not require costly equipment. Models and prototypes of widely ranging physical characteristics have been conveniently prepared by a similar technique including models for studies on engineering structures.

The first marketing and public advertising of positized hose was made in 1953. Despite the undoubted advantages that positex treatment confers on woolen goods in respect of shrink resistance, reduced felting and pilling, and improved wear, industrial response has been extremely sluggish.

"I think it needs just a touch of bitters!"

However, following the encouraging results from wearer trials referred to in previous Annual Reports, one manufacturer decided to offer positized stockings to the public. RTD positized some 3,000 dozen pairs of football stockings. Trade reception has been excellent, and a more general interest has been greatly stimulated.

Unwoven fibers can be bonded with positex to give a strong flexible fabric (rubber content about 25%) having great possibilities as a material for garment interlinings. The main technical hurdle is now largely an engineering one of providing an efficient process for large-scale continuous production.

Cooperation With Other Bodies

The Annual Report for 1953 concludes by citing the community of interest which has been established between BRPRA and other organizations, including the British Rubber Development Board, the Rubber Research Institute of Malaya, and the International Rubber Research Board.

As in previous years, pleasant and profitable cooperation has continued with the Road Research Laboratory, the British Leather Manufacturers' Research Association, the British Boot, Shoe and Allied Trades Research Association, the Hosiery and Allied Trades Research Association, the Printing, Packaging and Allied Trades Research Association, and the Research Association of Britsh Rubber Manufacturers.

Radiator Specialty Expansion

Radiator Specialty Co. has begun construction of a new building adjacent to its Charlotte, N. C., plant, which will be used to house an enlarged machine shop, rubber lathe cut goods department and a new and larger rubber laboratory. The new addition is expected to be completed by January, 1955. The southern company has been enlarging its facilities in Charlotte, N. C., since it moved this operation from the west coast in 1949, and this is the third new addition in as many years. The company recently purchased all the rubber plumbing specialty molds from the U. S. Rubber Co., and now manufactures over 600 rubber plumbing specialty items for the trade. Radiator Specialty Co. operates one of the few mechanical and lathe cut goods plants in the southeast.

Predicts Tire Price Rise

E. J. Thomas, president of the Goodyear Tire & Rubber Co., has predicted that a price increase of about 5% can be expected in the tire industry by the end of this year. Higher material and labor costs, particularly the 6½ cents an hour raise granted production workers after Goodyear's recent 52-day strike, were seen as the contributing factors. Mr. Thomas' forecast was made during a press conference in Los Angeles where he was attending a regional Goodyear sales meeting

Appointed Technical Assistant

L. A. Woerner

L. A. Woerner has joined the Automotive Rubber Co., Inc., of Detroit, Mich., as technical assistant to Tim Meulenberg, president of the company. Mr. Woerner's assignments with Automotive Rubber will involve a broad variety of development and research pertinent to industrial, trade, and consumer rubber products and services. His activities will involve working with company engineers and facilities in Detroit, Kalamazoo, and Houston. Before joining Automotive Rubber, Mr. Woerner held the position of general manager with the Surety Rubber Co. Before assuming the latter post, he had been associated with other nationally-known rubber products manufacturers. During World War II, he served with the Reconstruction Finance Corporation as assistant manager of the Research and Development Section, Office of Rubber Reserve. Before the war, Mr. Woerner devoted himself to product development in the sponge rubber field and to rubber processing methods. Mr. Woerner received his bachelor's degree in chemistry at Adrian College and was graduated from the Massachusetts Institute of Technology with a master's degree in chemical engineering. He also studied at Akron University and Carnegie Tech, participating in the program for executives at the latter school. Mr. Woerner is active in the Professional Engineers Society and the Division of Rubber Chemistry of the American Chemical Society.

Oakite Opens New Laboratories

On September 15, Oakite Products, Inc., New York, N. Y., opened their new and expanded laboratories in that city. Guests and officials of the company took part in the opening ceremony and then toured the laboratories, which cover 30,000 square feet on a single floor. The laboratory, which is sub-divided into three major sections—product development, customer service, and engineering—will continue to devote itself to the cleaning and sanitation problems of the nation's production and service industries. In addition, a complete pilot plant is planned for the small scale manufacture of detergents and solvents prior to extensive field testing.

Two New Flexol Plasticizers

Two new, higher alcohol phthalate plasticizers for vinyl chloride resins, "Flexol" plasticizers 810 and 812, are now available in tank car quantities from Carbide and Carbon Chemicals Co., New York, N. Y. These new plasticizers are derived from distinctly different higher alcohols produced in the Company's plants. Carbide and Carbon states that both plasticizers are completely compatible with vinyl chloride resins and are outstanding for their reduced volatility, improved low-temperature properties and excellent electrical properties. Flexol plasticizers 810 and 812 are light-colored and chemically stable. In vinyl plastics they exhibit excellent heat and light stability, freedom from odor, unusual resistance to extraction by water, and good resistance to "rub-off" from upholstery sheeting. Plastisols prepared with 810 and 812 have excellent viscosity stability, although lower viscosities are obtained with 812. It is expected that Flexol plasticizers 810 and 812 will be used in all segments of the vinyl plastics industry, including the manufacture of calendered film and sheeting. electrical insulation, profile extrusions, coated fabrics, and slush-molded or dip-molded articles. Nitrocellulose lacquers and nitrile rubber compounds formulated with 810 or 812 will exhibit improved properties.

Appoints Two To Sales Posts

The appointment of P. L. Richards as assistant sales manager of the Alcohol and Chemical Division and G. M. Herbert as assistant manager of the Paramins Division has been announced by the Enjay Co., Inc., New York, N. Y. Mr. Richards joined the Standard Oil Development Co. in 1937, following graduation from the University of Massachusetts. In 1946, he was transferred to the Chemical Products Department of Esso, and in 1950 went with Enjay as technical service coordinator. Prior to his latest appointment, he was assistant sales manager. Mr. Herbert has been technical service representative with Enjay since 1949, and entered the oil industry in 1938. He is a graduate of the University of Illinois.

LABOR NOTES

As of this writing, the strike by members of Local 399 of the United Rubber Workers, C.I.O., against the Johnson Rubber Co., Middlefield, Ohio, is still in progress. The plant was struck on July 30, with most of the contract up for negotiation. Involved were pay for holidays, permanent time standards and vacations. The union also wanted a general wage increase of 10 cents an hour, and 2 cents to adjust inequalities. The company employs about 500 persons.

Seiberling Rubber Co. and the URW have signed an agreement giving production workers at Barberton, Ohio, a 6 cents an hour wage raise. About 1,400 employees were involved. About 50 other URW members at the company's Carey, Ohio, plant, received 6½ cents an hour raises.

Thompson Joins Rhodia Staff

W. B. Thompson

Warren B. Thompson, formerly associated with E. I. du Pont de Nemours & Co., has become associated with Rhodia, Inc., New York, N. Y., as sales representative in the Middle Atlantic states, with headquarters in Philadelphia, Penna. In his new position, Mr. Thompson will be responsible for sales of the products of Rhodia's Industrial Reodorant (Alamask) Division and for sales of aromatic chemicals to the perfume, toiletries and soap industries. The Industrial Reodorant Division produces a series of reodorants for odor abatement in the pulp and paper, petroleum, rubber, sewage and industrial wastes, canning, fertilizer, pharmaceutical, brewing, leather and textile industries. Mr. Thompson was born and educated in Philadelphia and has spent the last ten years in that territory as DuPont sales representative for aromatic chemicals and industrial reodorants.

K2 Protective Compound

A new protective grease, based on SF-96 silicone fluid, a development of the General Electric Co., is now being marketed by the Jill Manufacturing Co., Revere, Mass. Called "K2 Protective Compound," the new grease is one of the most recent silicone developments intended for automotive maintenance. Jill officials said that the G-E Silicones prevent K2 from melting or freezing in temperatures ranging from —70° to 400°F. The grease is water-repellent and chemically inert. One application is said to last an entire season, because it does not wash off. K2 was designed as a lubricant for rubber parts that produce annoying squeaks when not lubricated, for door weatherstrips, hood lacings and hood bumpers. It is also believed to be effective as a weatherstrip freeze-preventive around door and trunk openings, minimizing damage to exposed weatherstrip. K2 has no swelling effect on rubber, but keeps it soft and pliable. It is packaged in one-, two- and eight-ounce tubes.

Need a personal file of RUBBER AGE? Use the coupon on Page 151.

New Use for Polyethylene

Development of a new use for polyethylene film—as a barrier against moisture vapor in building construction—has been announced by the Visking Corp., Chicago, Ill. The company termed the development a significant step forward in the construction industry, one which will save home and building owners millions of dollars annually in deterioration losses. Company officials said that its product, named "Visqueen" film, should last for the life of the structure. Visqueen is described as a pure seamless plastic that is chemically inert. The plastic film can be applied to the warm side of exterior walls, over subflooring, and underneath concrete slabs, crawl spaces, etc. Because the product does not contain a plasticizer, the company states, it will not crack, age, or leach out. The film reportedly melts slowly when flame is applied. It will not flash or sustain combustion. The company states that it not only provides a moisture and water barrier, but also makes side walls air-resistant. When used over sub-flooring, it makes floors dust-proof and air-resistant—buildings cleaner and less drafty.

U.S. Rubber Promotes Westfall

James C. Westfall has been appointed manager of sales production coordination for the Mechanical Goods Division of the U. S. Rubber Co. It will be Mr. Westfall's job to develop programs and schedules to facilitate customer service and maintain continuous production with reasonable inventory investment. He will work with sales management, production management and factory sales production coordination managers, and will headquarter in the company's Passaic, N. J., plant. A graduate of Princeton and the Harvard University School of Business Administration, Mr. Westfall started with a Cleveland subsidiary of U. S. Rubber in 1929. He was later transferred to Passaic, where he became manager of the Sales Production Coordination Department in 1935, and assistant superintendent of the Belting Department in 1947. He was made assistant to Ernest G. Brown, vice-president and general manager of the Mechanical Goods Division, in 1953.

Celebrates 25th Anniversary

Formal observance of the 25th anniversary of the Cartersville, Ga., textile mill of the Goodyear Tire & Rubber Co. was to have been held on October 1 and 2. The two-day celebration by employees was to have included an open house party for the public on October 1 with a parade, barbecue and other festivities for employees and their families on October 2. A large group of Goodyear executives, headed by P. W. Litchfield, chairman of the board, and E. J. Thomas, president, were expected to attend the gala affair. Since its beginning in 1929 with a handful of technical tire fabric experts and a little more than 500 employees, the mill has doubled its employee count and its production from less than 10,000,000 pounds of fabric annually to last year's record-breaking 30,000,000 pounds.

FINANCIAL NEWS

Firestone Tire & Rubber Co.

Nine Months to July 31: Net income of $28,314,009, which is equal to $7.03 a share, compared with $32,626,278, or $8.21 a share, in the comparable period of last year. Net income figures do not include a reserve of $1,451,000 for earnings of certain foreign subsidiaries which cannot now be remitted. A similar reserve of $974,000 was provided for in the nine months last year. Sales during the nine month period declined to $688,033,661, from $747,090,554 last year.

Dayton Rubber Co.

Nine Months to July 31: Net profit of $409,025, which is equal to 58c a common share, compared with $1,305,781, or $2.10 a share, in the same period of the preceding year. Net sales for the period amounted to $36,329,486, compared with $43,981,346 in the nine months ended July 31, 1953.

Lee Rubber & Tire Corp.

Nine Months to July 31: Net profit of $944,766, which is equal to $3.38 a share, compared with $1,252,715, or $4.48 a share, in the same period of the preceding year. Net sales and other income amounted to $27,885,394, compared with $32,677,026 in the nine-month period ended July 31, 1953.

Monroe Auto Equipment

Year to June 30: Net income of $72,614, which is equal to 3½c a common share, compared with $573,718, or $1.33 a share, in the preceding year. Net sales amounted to $16,200,983, compared with $19,250,758 for the year ended June 30, 1953.

Faultless Rubber Co.

Year to June 30: Net income of $391,985, which is equal to $2.93 a common share, compared with $400,694, or $3.00 a share, in the preceding year.

Lea Fabrics, Inc.

Year to May 31: Net profit of $502,388, which is equal to $2.39 a share, compared with $560,758, or $2.67 a share, in the preceding year.

Diamond Alkali Promotes Two

Diamond Alkali Co., Cleveland, Ohio, has announced the promotion of two sales representatives to managerial posts at the company's national headquarters in Cleveland and its Chicago sales office. Kemble S. Lewis, for the past two years assistant branch manager of the company's Chicago sales office, has been named sales manager of the Plastics Division. He will be responsible for polyvinyl chloride resin sales. Succeeding Mr. Lewis as assistant branch manager in Chicago is Olin Smith, who has been a special staff assistant in the Sales Department at Cleveland since May, 1953.

Dunlop Tire Appoints Aubrecht

The appointment of L. J. Aubrecht as sales executive in the administration of the Dunlop Tire and Rubber Corp., Buffalo, N. Y., was recently announced. The creation of this position ties in closely with the company's campaign to make a serious bid for a larger share of the passenger car, truck, and bus tire market in this country. This campaign is being implemented by a $5,000,000 program of automatizing and expanding the company's production facilities at Buffalo, and by the overhauling of the firm's top management and sales organization. Mr. Aubrecht's appointment plays a significant role in that comprehensive program. It will be his function to research industry trends, economic conditions and consumer buying habits, and to assist in developing and coordinating the company's over-all sales program and marketing policies. His efforts will be concentrated initially on vehicle tires of all types, and on "Pillofoam" foam rubber. Mr. Aubrecht joined Dunlop from Ebasca Services, Inc., where he was engaged as a marketing consultant.

Rub-R-Ize Liquid Coating

Rubber Magic, Inc., Brooklyn, N. Y., has introduced a new liquid rubber coating which will dry to form a waterproof, weatherproof, air tight rubber covering, for countless household and workshop applications. "Rub-R-Ize" is a natural liquid rubber which can be applied like paint. It can be used for dipping, is non-inflammable, and rubberizes quickly at normal temperatures. The company states that Rub-R-Ize will prevent rusting if applied to the automobile exhaust and muffler; it will weatherproof ignition wires; make cellar and attic steps permanently non-slippery, and applied to the underside of scatter rugs, it will eliminate skidding. Rub-R-Ize can be used to patch and waterproof convertible car tops, patch umbrellas, waterproof outdoor lights and splinterproof mop handles. Available in red, green, black, blue, gray and transparent, Rub-R-Ize comes in one-half pint, pint and quart sizes and can be applied with a brush or spray.

RPA No. 6 Plasticizer

RPA No. 6, a new chemical plasticizer for natural rubber, which also finds application in hot, cold and oil-extended GR-S types, has recently been introduced by the Rubber Chemicals Division, E. I. du Pont de Nemours & Co., Inc., Wilmington, Delaware. The new plasticizer is a non-dusting, free-flowing, powdered material which is characterized by a high degree of activity, short breakdown times, effectiveness in both Banbury and open mill mastication, and lack of toxic effects when used according to described procedures. Elastomers which have been plasticized with RPA No. 6 are reported to have excellent stability with little change in plasticity during normal storage. The plasticizer is a pentachlorothiophenol with a specific gravity of 1.72. A technical report on RPA No. 6 (Report No. 53-2) is available on request to the company.

Sewell Appointed Sales Manager

J. B. Sewell

J. B. Sewell has been appointed general sales manager of the Garlock Packing Co. of Palmyra, N. Y. Effective October 1, Mr. Sewell took charge of the sale of Garlock products through the company's 29 divisional offices throughout the United States and Canada. Starting in 1935 as salesman for the Montreal area, Mr. Sewell was appointed vice-president of the Garlock Packing Co. of Canada, Ltd., in 1947. In this position he had full charge of sales activities. As general sales manager, he will take over the sales duties of Louis Mohn, a vice-president of the company, who is on sick leave.

To Build Tire Plant in Egypt

Mansfield Tire & Rubber Co., Mansfield, Ohio, and its subsidiary, Inland Rubber Corp., Chicago, Ill., plan to set up a $3,000,000 tire and tube manufacturing plant in Alexandria, Egypt. The plant will be installed in Alexandria under an agreement with the Transport and Engineering Co. of Cairo, and will be equipped under the direction of Mansfield and Inland engineers who will also serve as production and compounding consultants to the permanent staff. Production, at the rate of 200,000 tires a year, will get under way in 1955. A new building for the plant has already been completed. Tires will be manufactured under the Inland name with distribution planned at first in Egypt and the Sudan. Eventual export distribution will be under the direction of Charles A. Rountree, president of the Inland Rubber International Corp.

American Enka Adopts Trademark

American Enka Corp., New York, N. Y., has announced the adoption of the trademark "Nylenka" for use in connection with all of its nylon products. Registration of this trademark has been submitted to the United States Patent Office. The company is currently producing commercial quantities of nylon staple in its plant at Enka, N. C. Present schedules call for production of nylon tire yarn this fall and nylon filament yarn for textiles early next year.

Midget-Sized Rubber Rolls

A series of small rubber rolls that rotate on a common, stationary shaft comprise a new type of rubber roll for sheet steel pickling operations announced by the B. F. Goodrich Company Industrial Products Division, Akron, Ohio. On an installation at the Pittsburgh Steel Co. plant in Allenport, Penna., 21 of the midget-sized rubber rolls form a rotating rubber cushion to support sheet steel as it passes from one pickling tank to another. Under the pull of the steel sheet the ring-like segments rotate individually to produce the effect of a turning, but bearingless roll. Developed and patented by Goodrich, the new sectional roll is said to prevent scratching of the steel sheet, reduce maintenance costs and simplify roll warehousing. The new roll costs one-third less than conventional skid blocks, the company states, and is easier to install. Each rubber segment is four inches wide, weighs nine pounds and has a one-inch soft, but tough, rubber cover mounted on a one-inch base of hard, graphite-impregnated, internally lubricated rubber. The graphited base provides an inner surface which allows the ring to turn easily around the six and one-quarter inch diameter rubber-covered shaft. For ease of installation, the stationary shaft is placed in rubber-covered steel boxes cemented into the brick wall of the tanks. The shaft can be easily removed for replacement of one or more individual rings of rubber. The segments slip easily into place on the shaft.

National Shoe Products Formed

National Shoe Products Corp. has been formed with offices at 185 Devonshire St., Boston, Mass., to distribute essential products and supplies to the shoe manufacturing and related industries. Heading the new firm is Willard Howard, president. Mr. Howard recently resigned from the United Shoe Machinery Corp. where he held the positions of sales department manager and assistant general manager. At first, the new firm will concentrate on handling a list of products which the Supreme Court ruled could no longer be distributed by United Shoe Machinery. The new firm will be in direct competition with United Shoe on these items until 1957, at which date United Shoe must relinquish its distribution rights. It is emphasized that National Shoe Products is in no way associated with United Shoe Machinery.

Acquires Savage Shoe Co.

International Shoe Co., St. Louis, Mo., has acquired Savage Shoes, Ltd., largest Canadian shoe manufacturer. Terms of the purchase were not disclosed. The Canadian firm will continue to operate as a separate corporate entity and there will be no change in management or policy. The acquisition of Savage is another step in International's program for expansion into new and attractive areas of operation.

Can't locate the office copy of RUBBER AGE when you need it? Use the coupon on page 151.

Stanton Joins Goodyear Chemical

L. E. Stanton

Laurence E. Stanton has been added to the staff of the Chemical Division of the Goodyear Tire & Rubber Co., to head up the Houston, Texas, sales territory. Mr. Stanton has had previous technical and sales experience in the rubber and paint fields. He was graduated from North Park Junior College and received his bachelor of science degree in chemistry from Elmhurst College. During World War II, he was a member of the U. S. Naval Air Force.

10th Instrumentation Symposium

The School of Engineering, Chemical Engineering Department of the Agricultural and Mechanical College of Texas, College Station, Texas, has announced the tenth "Symposium on Instrumentation for the Process Industries" which will be held on January 26, 27 and 28 at the College. The series of annual symposia were begun in 1946. The series is designed to lead to an improved understanding of the principles and practice of instrumentation. Particular attention will be given to new developments. The material will be on a practical engineering level; theory, when it is needed, will largely be given nonmathematically. The talks will be directed toward all engineers whose work requires knowledge of industrial instrumentation; that is, toward instrument, design, process and operating engineers. The registration fee is $10.00 per person, and all interested persons are invited to attend.

New General Tubeless Tire

General Tire & Rubber Co., Akron, Ohio, has announced the introduction of a new tubeless tire following the successful completion of a "multi-million mile road testing program." One of the tire's construction features is described as a patented pressure-lock air seal at the tire bead. Regardless of road hazards or abuse, the pressure-lock adjusts the tire to all rim variations without any chance of air loss, the company states. The tire's puncture-sealing compound remains in place under high speed and intensive heat, it was added.

Booklet on Engineering Services

For some twenty-eight years the firm of Giffels & Vallet, Inc., L. Rossetti, has been offering a specialized service within the engineering and architectural professions. The wide scope of operations has given a broad experience to the firm's large integrated staff and, in turn, extended its activities into many fields of service to industry and to the general public, both nationally and internationally. Some idea of this scope can be realized from a new, 72-page brochure recently issued by the firm. The brochure, by word and picture, briefly outlines the growth of the firm, the many types of architectural and engineering services offered, and illustrates some of the important structures and other work designed over the years. The latter include many installations in the rubber and plastics fields. Copies of the brochure may be secured by writing to Giffels & Vallet, Inc., L. Rossetti, 1000 Marquette Building, Detroit, Mich.

Forms New Sales Division

Advance Solvents & Chemical Corp., New York, N. Y., has announced the formation of a new sales division to specialize in petrochemicals. Of late, the company has been expanding its fields of interest and it has become desirable to group the sales and technical service of "Vistac" polybutenes, lubricant additives, waxes, mastics, and other related products in a separate department. The company believes that this will better serve the increasing number of customers in fields other than the finishing industry with which the company has been primarily associated for many years. Agnew A. Talcott, associated with the solvents and chemical industry for many years, has been named manager of the new Petrochemical Sales Department.

Quality Control Conference

Members of the American Society for Quality Control, together with interested industry personnel, will meet in Dallas, Texas, on November 18th and 19th, for the Ninth Midwest Quality Control Conference. The theme of this year's conference is to "Create, Promote and Stimulate Interest of Industry in Scientific Applications of Quality Control Designed to Increase Production, Improve Quality and Lower Cost." There will be 21 technical sessions and a program has been arranged for the ladies. For information concerning registration, write to J. L. Coburn, Convair, Division of General Dynamics, Corp., Fort Worth, Texas.

Albert Buys Cambridge Glass

Sydney L. Albert, president of L. Albert & Son, Akron, Ohio, suppliers of rubber and plastics machinery, has acquired 100% of the stock of the Cambridge Glass Co. of Cambridge, Ohio. The purchase price was not announced. This is the twenty-sixth company which has been acquired by Mr. Albert, most of them within the past few years. Founded in 1901, Cambridge Glass is one of the few producers of handmade, blown glass and crystal.

Use of Plastics in Tooling

According to R. S. Aries & Associates, New York, N. Y., resins have invaded the tooling industry. Where formerly only metals were used, an estimated 5,000,000 pounds of phenolics, epoxies, and other polymeric materials are expected to be used during 1954. Replacing the more expensive and harder to handle metals, resins are being used in many tooling applications with equally good service, but at drastically lower costs and labor requirements. R. S. Aries estimates that in 1954, 2,000,000 pounds of the epoxies and 3,000,000 pounds of the phenolics were used. It is estimated that in 1956, 8,000,000 pounds of epoxies and 4,000,000 pounds of phenolics will be used in addition to 2,000,000 pounds of other types, for a total of 14,000,000 pounds.

Available in Nylon Construction

The "U. S. Royal 8" passenger tire, announced recently in tubeless and conventional tube design, is now being made available additionally in nylon construction, according to the Tires Division of the U. S. Rubber Co. It is priced at about 20% above the same tire with a rayon body. The company states that with nylon, the tire is exceptionally well suited for use in those areas where very rough highway conditions are encountered, and where bruise breaks constitute a hazard. In addition, the nylon allows a thinner carcass to be used, which serves to make the tire cooler running than conventional tires. Exceptional strength is a feature of the Royal 8 with nylon construction, and this tire virtually eliminates bruise breaks.

Quaker Pioneer Buys Division

Quaker Pioneer Rubber Mills, division of the H. K. Porter Co., Inc., Pittsburg, Calif., has purchased the lawn hose division of Extruders, Inc., Hawthorne, Calif., according to an announcement by G. A. Dauphinais, vice-president and general manager. The purchase will enable Quaker Pioneer to expand its lawn hose manufacturing facilities and increase customer service. In addition to lawn hose, Quaker Pioneer manufactures and distributes a complete line of industrial rubber products, including belting, hose and packings. Extruders, Inc., will continue to manufacture polyethylene film.

Named Director of Grace

Hugh S. Ferguson, president of the Dewey & Almy Chemical Co., Cambridge, Mass., has been elected a director of W. R. Grace & Co. of New York, N. Y. A proposal to merge Dewey & Almy into Grace has been approved by the boards of directors of both companies and will be submitted to stockholders on October 25.

Silicone Cable Insulation

A new silicone rubber cable insulation, capable of reducing processing problems common to other existing materials of this type, has been announced by the Silicone Products Department of the General Electric Co., Pittsfield, Mass. Designated "SE-965," the new rubber requires no milling. It can be easily fed into extruding equipment, needs no oven baking and is low in cost compared with most silicone rubber compounds. SE-965 is said to have excellent shelf stability, good electrical properties and can be tinted in various colors. It has a smooth and glossy finished surface and braids readily, with no oven cure, and is suitable for Navy Cable and for general commercial applications for heat service up to 150°C. Relatively inexpensive general purpose silicone-insulated wire can be produced using SE-965, for applications where temperatures of from —65° to 300°F. are encountered.

Data on Compounding Methods

The series of articles which appeared over a period of thirteen months in the *Rubber World* by Dr. I. Drogin under the title "Methods Employed in Compounding Research" has been made available in reprint form by the United Carbon Co., Charleston, West Virginia. Issued as a booklet with plastic binding, the 64-page reprint outlines the tools of compounding research, discusses improved testing equipment and techniques, and then details procedures applicable to the numerous polymers currently used in the rubber industry. An extensive bibliography is also included. Copies of the booklet reprint are available on request from the company.

Win Management Methods Awards

Among those receiving awards in the "Best Place to Work" competition sponsored by *Management Methods* were the Stauffer Chemical Co., Columbian Carbon Co. and the Dow Chemical Co. The competition was designed to demonstrate how well-planned, well-integrated quarters improve both employee and executive productivity and morale. On the premise that the "environment in which men and machines operate has a direct and measurable effect on their output," the publication awarded Stauffer Chemical first prize, designating the company's main offices at 380 Madison Avenue, New York, N. Y., as the "Best Integrated General Office."

Snell Expands Facilities

Foster D. Snell, Inc., has announced its fourth expansion since 1947 when the firm acquired its present 10 stories of offices and laboratories at 29 West 15th St., New York 11, N. Y. This new acquisition of leased space at 42 West 15th St. in New York City will be in addition to the other facilities owned in New York and at Bainbridge, N. Y. The departments to move to new quarters will be Engineering and Chemical Market Abstracts. The move will release areas for additional laboratories and office space for expansion of research departments.

NAMES IN THE NEWS

VERNON J. LIBERTY, associated with the Rodney Hunt Machine Co. for the past four years, has been named assistant manager of the Industrial Rolls Division.

CARL J. MCNALLY, associated with the Dunlop Tire & Rubber Corp. since 1930, has been named manager of the Buffalo sales division of the company. He will supervise sales activities in part of New York, Pennsylvania, West Virginia and Ohio.

BEN DAVIS, director of sales for the Davis-Standard Sales Corp., Mystic, Conn., is on an extended trip abroad for the purpose of studying problems related to the extrusion of rubber and plastics.

FRANCIS B. SPEAKER has been named manager of non-ferrous metal mining industry sales development for Hewitt-Robins Inc., while CHARLES W. HAINES has been appointed manager of petroleum industry sales development.

GEORGE E. MANSER, JR., associated with the U. S. Rubber Co. since 1926, has been appointed commodity sales manager of automotive coated fabrics for the company.

EDWIN E. CALVIN, vice-president in charge of personnel at the Bearfoot Sole Co., Wadsworth, Ohio, has resigned to enroll in the School of Education at Kent State University. He will enter the field of vocational guidance work on the secondary school level.

NOBLE ASHLEY, special assistant to the general sales manager of the Tire Division of the U. S. Rubber Co., retired on August 31. He had been with the company for nearly 46 years.

V. W. AUBLE, JR., associated with the Allied Chemical & Dye Corp. since 1939, has been named manager of the Philadelphia sales branch of the Solvay Process Division succeeding the late C. M. Peterson.

CHARLES S. MCINTYRE, formerly vice-president and secretary of the Monroe Auto Equipment Co., has been elected executive vice-president. C. S. MCINTYRE, III, has been named secretary of the company.

FRANK JOHNSON, formerly associated with the General Electric Co. and the James L. Entwistle Co., has joined the engineering staff of the Davis-Standard Sales Corp.

HERMAN K. ENCKE, formerly associated with the Grinding Wheel Corp., is now associated with the Bancroft-Hickey Manufacturing Co., Bristol, Penna.

IRVIN R. HELLER has been promoted to project engineer, and PERRY LAZICH has been promoted to foreman in the Shipping Department at the Seiberling Rubber Co., Akron, Ohio.

HOWARD DODGE, vice-president in charge of the Industrial Products Division of the General Tire & Rubber Co., will headquarter at the company's Wabash, Ind., plant, effective September 15.

MELBOURNE P. BINNS, associated with Sharples Chemicals Inc. since 1952, has been named senior salesman for the St. Louis, Mo., territory of the company.

CHESTER D. RUDOLF and DR. WILLIAM D. JONES have joined the Silicate, Detergent, Calcium Division of the Diamond Alkali Co. They will be engaged in technical service and applied research activities in the Calcium Carbonates Section of the division.

GEORGE R. LAWSON, vice-president in charge of sales of Sharples Chemicals Inc., has been selected to participate in the Advance Management Program of the Harvard Graduate School of Business Administration.

JOSEPH J. SWIGART has been appointed general manager of the Vitro Rare Metals Co. of Canonsburg, Penna., succeeding FRANKLIN H. BIVINS, who has been named assistant to the executive vice-president.

JOHN W. CONYERS, JR., formerly a sales analyst for Sharples Chemicals Inc., has been transferred from the Sales Department to the Market Development Department.

EDWARD J. MCDONALD, secretary-treasurer of the Seamless Rubber Co., has been elected to membership in the Controllers Institute of America.

JAMES V. CAWLEY, editor of *Modern Sanitation* since its founding in 1948, has resigned to become vice-president of Industrial Sanitation Counselors, Louisville, Ky.

JOHN J. RIECK, formerly manager of the nylon project of the National Aniline Division, Allied Chemical & Dye Corp., has been named manager of the new Chesterfield Synthetic Fiber Plant located in Hopewell, Va.

EUGENE F. GIBBONS has been added to the sales promotion staff of the Chemical Division of the Goodyear Tire & Rubber Co., Akron, Ohio.

Need a personal file of RUBBER AGE? Use the coupon on Page 151.

Firestone Deluxe Champion Tire

Firestone Tire & Rubber Co., Akron, Ohio, has announced the development of the "Firestone Deluxe Champion," a new tubeless tire said to feature a revolutionary new tread design. The tire is the first tubeless unit specifically engineered to provide extra safety and comfort for motorists driving modern automobiles with power steering, power brakes and high horsepower engines, the company claims. The new tread includes entirely new engineering principles giving a glide-like ride over rough and irregular roads. Tire squeal in turns and sudden stops has been virtually eliminated by its special design. It runs silently at any speed, Firestone

states. Outstanding safety feature of the new tread design is the great increase in traction provided by the ingeniously arranged skid resistors. There are 70% more skid resistors, resulting in greatly increased traction and car control. The skid resistors, running in a diagonal direction, not only improve forward traction but also guard against side skidding. By varying the distance between the tread design elements, company engineers have been able to silence the noise of the tire on straight runs and in cornering. By designing a tread that is more streamlined and flatter than in earlier models, riding qualities have been improved. Because the tread conforms better to the road surface, small obstructions in the road are enveloped in the tread rubber and bumps are hardly felt, the company claims. After going over such obstructions, the tire does not bounce.

WALTER E. MAX, associated with the Worthington Corp. since 1934, has been appointed general superintendent of the Buffalo Works. HARRY P. YOUNT succeeds Mr. Max as manager of the Buffalo Service and Erection Department.

PETERSON NESBIT has joined the New York district sales office of the Reliance Electric & Engineering Co., as an application engineer, while ALBO D. BUA has joined the Newark, N. J., district sales office in a similar capacity.

Develops Puncture-Sealing Tube

A new lightweight puncture-sealing tube that is said to weigh a third less than most tubes of its type, and which gives increased tire mileage and less danger of blowouts, has been announced by the U. S. Rubber Co., New York, N. Y. Because of the important saving in weight, the tube runs at relatively cooler temperature. Less build-up of heat means more tire mileage and reduced chances of blowout, according to company officials. The new tube, known as the "U. S. Royal Master Seal," has a plastic sealant that does not flow or bunch up to cause out of balance tires. The plastic operates under all temperature conditions, sealing punctures completely and instantly. The sealant sticks to the puncturing object, and permanently repairs the tube as the object is removed. Construction of the Butyl rubber tube is possible because it is helically formed, U. S. Rubber states. Tubes are said to fit the tire perfectly, and this prevents creasing that can lead to tube pinching and failure. They are also safety vented, with a ribbed design that channels away air that might be trapped between the tube and the tire casing.

U. S. Royal Con-Trak-Tors

U. S. Rubber Co. is now making giant tires that weigh 2600 pounds and stand eight feet tall—the largest ever made by the company — for use on huge earth-moving and strip mining equipment, bottom dump trucks and self-loading scrapers. These nylon tires, which are being made in the company's Detroit plant, are 30.00-33 in size and have a 40-ply rating. Called "U. S. Royal Con-Trak-Tors," the new giant tires have a full lug tread design that is said to insure excellent traction. Curing time for the 30.00-33 is about 16 hours, contrasted with approxi-17 minutes for a typical first-grade passenger car tire. Molds are so large that part of the plant wall had to be removed to install them. There is enough nylon in one of these tires, company officials report, to make 3,000 pairs of nylon stockings. About two miles of bead wire are used in each and the tread alone is 3½ inches thick.

Minneapolis Rubber Names Porter

Appointment of the Robert B. Porter Co., of Los Angeles, Calif., as California factory representatives and sales jobbers for custom molded rubber products of the Minnesota Rubber and Gasket Co., Minneapolis, Minn., has been announced by George E. Carlson, vice-president in charge of sales for the Minnesota firm. Robert B. Porter, president of the California company, will be in charge of Minnesota Rubber sales and service. The Minnesota concern is said to be the nation's largest producer of O-rings—seals for hydraulic, air and gas devices—and has developed a new Quad-ring seal with various industrial applications. A complete warehouse stock of O-rings will be maintained by Porter for area distribution. Robert B. Porter Co. is located at 1125 Goodrich Blvd., Los Angeles 22, Calif.

Armstrong Silent Storm King

Armstrong Rubber Co., West Haven, Conn., has introduced the "Silent Storm King," said to be America's first silent snow tire. The design, a radical departure from former mud and snow tires, features scientifically staggered grooves which increase traction forward and backward, and prevent sideslipping. Interlocking cleats allow greater flexibility and have 940 gripping edges. Larger, deeper bumper bars

help eliminate road sway and give improved stability even in the heaviest mud, the company states. Multiple rows of staggered grip-blocks eliminate road noise. The interlocking tread design gives a more level surface for smooth, even wearing and provides longer tread life. Armstrong "Ounce of Prevention" safety discs have been incorporated into the design of the tires. The Silent Storm King is backed with an unconditional guarantee against all road hazards for 24 months.

Installing Giant Conveyor

Hewitt-Robins Inc., Stamford, Conn., has been awarded a contract by the Potash Co. of America to extend a present underground conveyor system at a mine in Carlsbad, N. M., to a total length of approximately seven and one-quarter miles. The present Carlsbad conveyor system, installed by Hewitt-Robins in 1952, is 5,800 feet long. The expansion program calls for additional units totaling 32,320 feet, which will increase the combined length to 38,120 feet, or approximately seven and one-quarter miles. When completed, the system will be the longest in the world. The longest conveyor system currently in operation is one in a Western Pennsylvania coal mine measuring five and one-half miles. When completed in 1955, the new conveyor system will consist of 45 units linked together to carry the material in a continuous flow from the mining area to the refinery. The rubber belt itself will be about fifteen miles long since it is necessary to double the length of the belt to provide for the return run.

Take a long time for this copy of RUBBER AGE to reach your desk? Use the coupon on page 151.

Texas 109 Carbon Black

Sid Richardson Carbon Co., Akron, Ohio, has announced the commercial availability of a new highly reinforced carbon black having the outstanding properties of both channel and furnace blacks. Called "Texas 109", the new black is said to impart to rubber stocks the plus features of channel and ISAF blacks. These features are noticeable with high tensile, elongation and tear found with channel blacks and the fast cures of furnace blacks. Abrasion resistance of tire treads made with Texas 109 has been shown by extensive road tests to be equivalent to that imparted by the ISAF blacks, the company states. Cracking resistance is good and factory processing is satisfactory. Good electrical conductivity is also obtained with the rubber stocks. Texas 109 is recommended for tire treads and for mechanical goods with high tensile and elongation specifications. It is a special channel black having the structure and particle size of an MPC black, but with a high pH. It also has the low ash and low extractable matter of a channel black, the company states.

Cyanamid Promotes Vriens

Dr. Gerard N. Vriens has been appointed a group leader in the Intermediates and Rubber Chemicals Development Section of the Bound Brook, N. J., plant of the American Cyanamid Co., it was announced by Lyman C. Duncan, general manager of the company's Organic Chemicals Division. Dr. Vriens joined Cyanamid in 1949 as a development chemist in process development. In 1952 he was named a senior chemist, a position he held until his present appointment. From 1944 to 1946, he served on active duty as a lieutenant in the U. S. Naval Reserve and is presently a member of the Naval Reserve Research Company in Princeton, N. J. Dr. Vriens received his B. S. and Ph. D. degrees in chemical engineering from Purdue University. He is a member of Sigma Xi, Phi Lambda Upsilon, Omega Chi Epsilon and Tau Beta Pi, honorary fraternities, the American Institute of Chemical Engineers, and is treasurer and member of the policy committee of the industrial and engineering group of the North Jersey Section, American Chemical Society.

Offers Pulverizing Facilities

Columbia Pulverizing Corp., Shiller St., Elizabeth, N. J., in a recently-published brochure, announces that it is equipped to handle the pulverizing of hard rubber to 100 mesh size. In addition, the company has also ground sponge rubber to specification. Columbia Pulverizing has approximately 50,000 square feet of covered space as well as unlimited outside storage. It is served by the Central Railroad Co. of New Jersey with a ten-car siding. It is also said to have excellent truck facilities. The firm is equipped to reduce hundreds of different materials to sizes in ranges from large pellets to microns. It also concerns itself with dry blending and impregnation of many different materials.

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Three Hercules Board Members

Three new members were elected to the board of directors of the Hercules Powder Co., of Wilmington, Del. They are: L. W. Babcock, director of personnel; John E. Goodman, treasurer, and Ernest S. Wilson, director of engineering. Mr. Babcock joined the company as a chemist at the Carthage, Mo., plant in 1917, after his graduation from Bowdoin College. He has been director of personnel since 1945, and prior to that, from 1940 on, was responsible for the staffing and training of thousands of technical personnel recruited by Hercules to operate government-owned ordnance plants. Mr. Goodman is a graduate of the Wharton School, University of Pennsylvania. He joined the company's Order Division in 1936 and became an assistant comptroller in 1946. In 1951, he was made an assistant treasurer and he became treasurer on January 1, 1954. Mr. Wilson joined the company in 1923 as an engineer. He was appointed general superintendent of plants operated by the Paper Makers Chemical Department in 1937, and was named assistant chief engineer in 1939. He has been director of engineering for the company since 1947.

U. S. Royal Truck Tire

A new truck tire called the "U. S. Royal" has just been introduced in the competitive price field by the U. S. Rubber Co., New York, N. Y. It has a wide, rugged, five-rib tread, with extra-sharp tread edges and irregular grooves that give excellent traction on slippery surfaces. Contact area with the highway is relatively large, which helps to reduce uneven wear. The new tire is being made in a wide range of sizes from 6.00-16 with 6-ply rating through 10.00-22 with 12-ply rating. This new U. S. Royal truck tire for highway use, the company said, has a tough heat-resistant rayon cord construction that stands up under constant punishment. A special plastic-resin coating bonds the rubber and fabric into a very strong carcass that is also suitable for recappings. Double shockpads are used to absorb road shock and reduce road failures. The new tire has a tread design similar to U. S. Rubber Fleetway tires, and its special tread compound helps give high mileage figures.

Tri-Rib R.S. Tractor Tire

A new front tractor tire that offers extra protection against sidewall bruising and abrasion has been announced by the U. S. Rubber Co., New York, N. Y. It has a smooth sidewall designed particularly to resist the chipping effect of stubble crops such as alfalfa, cotton and flax. Extra protection is built into the tire, called the "U. S. Royal Tri-Rib R. S.," by means of a reinforced scuffing rib. This improvement, according to company officials, is particularly effective where tires are used on tricycle type (row crop) tractors with high cambered front wheels, the company states. The tire will be available in all sizes from 400-12 two ply, up to and including 900-10 ten ply.

Army Testing Marsh Buggy

After 17 years of slushing through swamps, Gulf Oil's ungainly looking "Marsh Buggy" has been asked to report for military duty. The company's research laboratories have announced that they have constructed a unit for the U. S. Army Transportation Research & Development Command. Originally designed for prospecting in the marshy Gulf Coast area, the Marsh Buggy has an over-all length of 22½ feet, a width of nearly 12 feet and a height of 11 feet. It is equipped with 10-foot diameter balloon tires, among the largest ever built, which enable the vehicle to float in 2 inches of water. When equipped with rubber cleat chains, it can travel like a paddle wheel steamer. The new model, constructed for military testing in record time, incorporates several innovations. Tires have been widened to provide greater traction and support on treacherous surfaces. If one is punctured, it is kept fully inflated by a compressor which feeds air in through the hub. The new Marsh Buggy has a trailer, like two later models made for company service. It can take up to 2,000 pounds. The powered unit will carry a 1,500 pound load over any terrain, and loads up to 4,000 pounds under many conditions. The vehicle operates by four-wheel drive.

Union Asbestos Sells Plant

Union Asbestos & Rubber Co., Chicago, Ill., has sold its fibrous products plant in Paterson, N. J., to Jacob Moscow & Associates, a New Jersey real estate company, for an undisclosed sum. Union Asbestos closed down the 110,000 square foot plant, which once employed several hundred persons, because it was no longer needed due to a consolidation of a major portion of the company's fibrous products manufacturing at Bloomington. Ill. The sale completes the firm's program to streamline its Fibrous Products Division. Increased efficiency and new machinery installed at Bloomington, Tyler, Texas, and Marshville, N. C., have increased the company's productive capacity, officials stated.

Simmons on Critical List

Dr. Hezzleton E. Simmons, former president of the University of Akron, after suffering a heart attack recently, has been placed on the critical list at Peoples Hospital in Akron, Ohio. Dr. Simmons, who will be 69 years old on October 30, has not had previous attacks. He retired as president of the university in 1951, and recently has been handling scholarship and fellowship programs for the Firestone Tire & Rubber Co.

Thiokol Service Awards

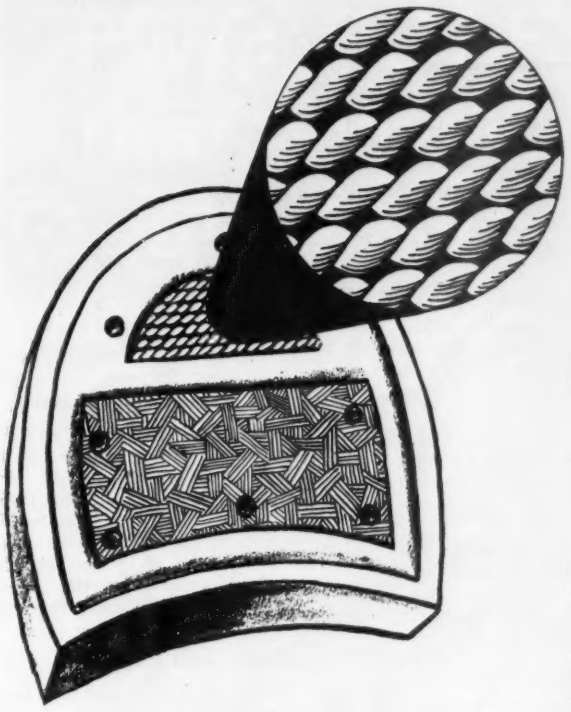
At a recent banquet held in Trenton, N. J., the Thiokol Chemical Corp. initiated the practice of presenting special awards to employees with more than ten years' service with the company. Andrew Fossum, the first employee to have served twenty-five years with the company, was presented with a specially jewelled service award and gifts. Twenty-seven other employees serving from ten to twenty-three years also received awards in the form of specially designed lapel badges. Heading the list of recipients were J. W. Crosby, president, H. R. Ferguson, S. M. Martin, Jr., and J. S. Jorczak, vice-presidents. Other employees similarly honored were: V. H. Perrine, F. Woods, Stella Buddy, F. O. Davis, F. Delehanty, M. Updike, R. S. Matthews, D. E. Fish, C. Pazdan, N. Johnson, H. Campbell, S. Kulesia, Helene Zmuda, E. Fedorko, E. R. Bertozzi, E. M. Fettes, Maisie Kolb, Elizabeth Jamieson, Grace Breen, L. Patterson, F. Wilson and W. E. Boswell. Dr. J. C. Patrick, the discover of "Thiokol" synthetic rubber, was present and was honored with a special gift in commemoration of the event.

Plant Maintenance Show

The International Amphitheatre in Chicago, Ill., will be the site of the next Plant Maintenance and Engineering Show which has been scheduled for January 24 through 27. The show, staged for the sixth time, will be the largest in its history. It is now one of the largest industrial expositions in the country. The show will be the first industrial exposition to occupy a huge new $2,000,000 hall which has been built as an addition to the International Amphitheatre. The new hall has 188,000 square feet of space, with large exhibit bays of 2,400 square feet unobstructed by columns. Headroom is at least 20 feet in all parts of the hall and 26 feet in some areas. Railroad sidings go directly into the new hall and accommodate ten freight cars simultaneously. Use of the new hall will permit all general sessions of the Plant Maintenance and Engineering Conference to be held in the arena, directly adjoining the exhibits. Advance registration cards may be obtained from Clapp and Poliak, Inc., 341 Madison Avenue, New York 17, N. Y.

Bond "Tweezle" Adhesive Film

Bond Adhesives Co., Brooklyn, N. Y., has announced a new adhesive film called "Tweezle Adhesive Film". Based upon Pliobond Adhesive, a product of the Goodyear Tire & Rubber Co., the product is an unsupported film, .006 of an inch thick. Easy to apply, the film may be applied with tweezers. The film may be wetted with a solvent which renders the surface very tacky. When the parts to be joined are brought together adhesion is immediate. Tweezle film is thermoplastic and will also adhere with heat and pressure. It can be used with marked efficiency on practically all surfaces with the exception of Teflon and polyethylene. The film is available in assorted colors.



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NEWS IN BRIEF

A condensed, revised catalog of "Magic-Vulc" products has just been issued by the Magic Chemical Co., Brockton, Mass. The catalog contains important facts about protective coatings and their many industrial applications.

An all-purpose cleaning cloth which will perform many household duties from washing the dishes to bathing the baby has been introduced by Lowndes Products, Inc., Greenville, S. C. The cloth is made of cotton fibers bonded together with a special Chemigum Latex.

A 10c per pound reduction in the price of Bakelite epoxy resins to stimulate greater growth in new markets has been announced by the Bakelite Co., New York, N. Y. The price cut, from $1.00 to 90c a pound, is effective as of September 1.

A new "Giant Bead Loosener" for the giant tires used on off-the-road equipment has just been announced by the Bishman Manufacturing Co., Osseo, Minn.

Foster D. Snell, Inc., New York, N. Y., has issued a new, illustrated 12-page booklet entitled "Engineering Services" which describes the services of the Engineering Division of the company.

A new technical bulletin on the polypropylene glycols has been issued by the Carbide and Carbon Chemicals Co., New York, N. Y. Physical properties, specifications, and shipping data are included for the series: 150, 425, 1025, and 2025. A table of compatibilities with various materials is also given.

Designed and molded by the Victor Manufacturing & Gasket Co. of Chicago, Ill., Hycar rubber bearing seals are being used in the front wheel bearings of International Harvester's line of small trucks.

"Chempac Packings and Gaskets" is the title of a new 6-page illustrated folder issued by Johns-Manville, New York, N. Y. Chempac materials are made of asbestos treated with Teflon.

Claud S. Gordon Co., 3000 S. Wallace St., Chicago 16, Ill., has issued a new bulletin illustrating and describing its complete line of Serv-Rite thermocouple wire and thermocouple extension wire. Ask for Form 1200.

A revised bulletin has been issued on the high pressure acetylene derivatives available from the General Aniline & Film Corp., New York, N. Y. Request Bulletin M-104 R.

A small, low-cost feeder for metering, controlling, mixing and dispensing small quantities of liquid chemicals is illustrated in Catalog 70-50, issued by the Fischer & Porter Co., Hatboro, Penna.

Volume 3, No. 6 of the Hycar Technical Newsletter, published by the B. F. Goodrich Chemical Co., Cleveland, Ohio, concerns itself with "Non-Skid Hycar Work Shoe Soles", "Good-Rite Resin 50 as a Reinforcing Agent for Shoe Soles", and "Toplift Formulations".

The firm of Singleton & Mack, Inc., Marietta, Ohio, has been named to represent the Plastics Products Department of the B. F. Goodrich Co. in the central midwest.

Pennsylvania Industrial Chemical Corp., Clairton, Penna., has announced the opening of its Detroit district sales office at 500 Griswold St., Detroit 26, Mich.

A new bulletin describing Wheelabrator steel shot, a cast steel, heat-treated, blast cleaning and peening abrasive, has been published by the American Wheelabrator & Equipment Corp., Mishawaka, Ind.

A new bulletin on complete instrumentation for pH measurement and automatic control has just been published by the Bristol Co., Waterbury, Conn. Ask for Bulletin Q-1304.

Pratt & Whitney, Division Niles-Bement-Pond Co., West Hartford, Conn., has announced that its subsidiary, the Potter & Johnston Co. of Pawtucket, R. I., has taken over the manufacture of products formerly made by Newark Gear, Inc. of Newark, N. J.

A conversion chart that does away with "computation headaches" in using phenolic resins to cast industrial parts and consumer items is now being made available by the Marblette Corp., Long Island City, N. Y.

Cumberland Engineering Co., Inc., Pawtucket, R. I., has moved its offices and manufacturing facilities to a new location at Roosevelt Avenue and Cole St. in Pawtucket.

Trabon Engineering Corp., Cleveland, Ohio, has published a new, 2-page bulletin, No. 545, on their series "SH" and "DH" high pressure lubrication filters.

Worthington Corp., Harrison, N. J., is now preparing a series of five easy-to-file mailers called "Trouble Savers" which are intended to help the users of V-belt drives to diagnose many of the common causes of trouble in their drives. Mailer V-1400-M39, first in this series, explains what to look for when the V-belt drive doesn't deliver maximum rpm.

Detailed specifications, performance charts and dimension tables regarding its line of "MD" fans are contained in Bulletin MD-101 published by the Chicago Blower Corp., Chicago, Ill.

B. F. Goodrich Promotes Haas

Willard Haas has been named technical manager for the B. F. Goodrich Co. Industrial Products Division, Akron, Ohio. Mr. Haas joined the company in 1929 as a chemist in the company's general chemical laboratory. In 1933, he became a service compounder in the Processing Division. He was transferred to the hose technical group in 1937 as a hose construction engineer and has held various assignments in the Hose Technical Department since then. Mr. Haas majored in chemistry and mathematics at Macalester College, St. Paul, Minn., where he received a B. A. degree in 1929. He is a member of the Society of Automotive Engineers.

Named a General Tire Director

Election of John Bolten, Jr., as a director of the General Tire & Rubber Co. of Akron, Ohio, was announced recently. Mr. Bolten, executive head of the Bolta Division of the company, is the founder of the Bolta Co., producer of plastics since 1919, which was acquired by General Tire last April 30. His election completes General Tire's directorate of fifteen members.

Gurley Joins Reichhold

Sam Gurley, Jr., has joined the sales staff of Reichhold Chemicals, Inc., White Plains, N. Y. He was formerly general sales manager of plastics and resins for the Barrett Division, Allied Chemical & Dye Corp. Mr. Gurley's experience in the plastics and industrial resins fields covers more than 14 years.

Hungerford Plastics Corp., Rockaway, N. J., is now making brightly colored hand grips for everything from bikes to outboard motors, from tough, corrosion-resistant, long-wearing vinyl plastic.

How to control dust in the manufacture of rubber goods is discussed in a new bulletin published by the American Wheelabrator and Equipment Corp., 1290 S. Byrkit St., Mishawaka, Ind. Write for Bulletin No. 442.

A permanent reference folder on phenolic resins and their industrial uses is being distributed by the Marblette Corp., 37-21 Thirtieth St., Long Island City 1, N. Y.

Dripping rain water stays out of the inside of convertibles which are protected with a new, colorful vinyl plastic drip rail, manufactured of Geon vinyl plastic by the Kessler Products Co. of Youngstown, Ohio.

Publication of the 1954-55 edition of the "United States Government Organization Manual" was recently announced. The revised manual reflects the organization of the Federal Government as of July 1, 1954, and includes the names and titles of approximately 3,500 key officials. The manual may be purchased for $1.00 from the Government Printing Office.

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R-54

LOS ANGELES NEWS

The establishment of a new reclaim plant on the West Coast by the Midwest Rubber Reclaiming Co., East St. Louis, Ill., came about as a result of plans which were first set forth in 1927. On September 20, 1927, the board of directors of the Akron Rubber Reclaiming Co., predecessor of Midwest Rubber Reclaiming, received a report which stated: "If we are to grow, this growth should be through the means of building a plant in the Mississippi Valley, or on the Pacific Coast, or both." The writer of this report, vice-president William Welch, was authorized by the board to proceed immediately with the construction of a plant in East St. Louis, Ill.

Early in February of this year, Mr. Welch, now chairman of the board of directors of Midwest Rubber Reclaiming, witnessed the culmination of that report. The company's new plant at Paramount, Calif., began production, fulfilling the ". . . or both" phrase of his original recommendation.

The new plant, approximately midway between Los Angeles and Long Beach, built at a cost of $2,500,000 by the McNeil Construction Co. of Los Angeles, was designed to produce twenty-five tons of reclaim per day. The floor plan of the building incorporates features which will permit increasing the production capacity without making major changes other than the addition of machines and workmen.

Mechanization is a fundamental feature of this plant. Conveyors cross the ceilings and floors, carry the stock between first and second stories, and aid in the separation of fiber from rubber in the evolution of the secondary product, baled tire fiber for use in automotive, petroleum, and allied industries.

The flow of material through the first stages represents a series of recycling processes to achieve fine-ground fiber-free rubber to be reclaimed and relatively rubber-free fiber to be baled. A mixer operator adds reclaiming agents to the fiber-free rubber and deposits the mixed batches into "boats", which are placed into a horizontal heater for steam treatment.

After the "cooking", another operator dumps the stock into a cake breaker, which crumbles the large cake into pieces small enough for efficient handling and accurate weighing at the Banbury mixer, where pigments and oils are added to produce desired characteristics. After mixing, the stock proceeds through a strainer and to the refiner line, where it is sheeted out and wound up to produce slabs of reclaim, the end product.

Under the direction of G. K. Trimble, president of Midwest Rubber Reclaiming, the plant recently held open house for two nights. Prior to a tour of the plant, the company served a buffet supper and presented its movie, "Behind the Scenes", filmed at the East St. Louis plant. This movie sets forth the difference between the two reclaiming processes employed by the company. A spokesman at the end of the showing explained that the dry process, alone, is employed at the company's Paramount plant.

Charles E. Hart, factory manager, Mel MacDonald, sales representative, Carl Totsch, sales head, and T. E. Corcoran, Jr., purchasing agent and office manager, assisted Mr. Trimble as hosts to approximately 300 business associates the first evening and some 200 employees and friends the following evening

The tour led through the entire plant during routine second-shift production, through departments engaged in cracking, fine grinding, fiber separation, mixing straining, and refining, through the maintenance shop, boiler room, and finally into the laboratory.

On October 1 the Pacific Chemical Co. became a partnership between Harold M. Brez and Arthur E. Wolff. On that date, company offices were moved to larger quarters in Berkeley, Calif., where warehousing facilities have been enlarged and improved. The new offices will be located at 2060 Third St., Berkeley 10. In addition, complete stocks will be maintained in San Francisco, Calif.

Mr. Wolff will divide his time between the Pacific Coast, was formerly associated with the New Jersey Zinc Co. More recently, he established a successful chemical marketing organization in the San Francisco area. Mr. Brez, who founded Pacific Chemicals in 1948, was previously associated with Sherwin-Williams, the California Ink Co., and is co-founder of a well-known San Francisco paint manufacturing concern.

Mr. Wolff, well-known in the trade on San Francisco, Los Angeles, and the Pacific Northwest, while Mr. Brez will confine his activities largely to the San Francisco area. Frank G. Collins, for many years connected with the paint and raw materials field in the San Francisco Bay area, will be district sales manager in the new organization.

According to Ernest G. Brown, vice-president and general manager of the Mechanical Goods Division, U. S. Rubber Co., sales of industrial rubber products by the company in California increased 320% between 1940 and 1953. Mr. Brown compared this with a 191% increase in the company's national industrial products volume during the same period. "We feel the substantial expansion of business in California amply justifies the faith our company had in the West Coast's potential when it established its first facility here more than 50 years ago," said Mr. Brown.

The October 5th meeting of the Los Angeles Rubber Group, scheduled to have been held at the Statler Hotel in Los Angeles, Calif., was to have featured an address by Merton L. Studebaker of the Phillips Chemical Co., Akron, Ohio. Mr. Studebaker was to have spoken on "Chemical Forces in the Reinforcement of Rubber by Carbon Black." The non-technical portion of the meeting was to have been addressed by R. A. "Dutch" Derr, ex-professional baseball player. A full report on the October 5th meeting will appear in a future issue of RUBBER AGE.

Appointment of the Nor-Cal Supply Co., Oakland Airport, Oakland 14, Calif., as authorized distributor of Parker O-rings has been announced by the Parker Appliance Co., Cleveland, Ohio. This distributor will be serviced from the Pacific branch of Parker's Rubber Products Division in Los Angeles.

Named Technical Representative

J. R. Jones has been named technical representative for the Claremont Pigment Dispersion Corp. of Brooklyn, N. Y. Mr. Jones was formerly color representative for the Ferro Corp. in Cleveland, Ohio. In his new position, he will head up Claremont's mid-western headquarters, with offices located at 1010 Euclid Building, Cleveland 15, Ohio.

Shown above is an aerial view of the new Paramount, Calif., plant of the Midwest Rubber Reclaiming Co.

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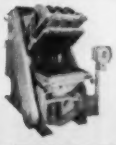

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CANADIAN NEWS

Ten companies comprising virtually the entire $124,000,000 Canadian electrical wire and cable manufacturing industry will go on trial late this year on charges of conspiring to operate a price-fixing combine. They were named in a true bill returned recently by a grand jury in Toronto, Ont.

The companies, including the industry's "big four", were named last November in a 247-page report by the Special Combines Commissioner, after an eighteen-month investigation. This report charged that the concerns "made a mockery" of competitive bidding by arranging to submit identical bids on tenders.

The report was released last November and in January of this year the government announced that it intended to press charges. Companies accused include: Northern Electric Co., Ltd., Filcrest (formerly Phillips Electrical Works, Ltd.), Automatic Electric Sales (Canada), Canada Wire & Cable Co., Ltd., Canadian General Electric Co., Ltd., Cables, Conduits & Fittings, Ltd., Federal Wire & Cable Co., Ltd., Triangle Conduit & Cable Co., Ltd., Boston Insulated Wire & Cable Co., Ltd., and Industrial Wire & Cable, Ltd.

Effective October 1, the name of the Dunlop Tire & Rubber Goods Co., Ltd., was changed to Dunlop Canada, Ltd. Recent changes in the company and its products and the addition of many new lines containing synthetic materials, made a new name desirable, company officials stated.

The multi-million dollar expansion program recently announced by the company, now under way at Whitby, Ont., will include the immediate construction of a new "Pillofoam" cushioning plant. The new plant will be the second Dunlop factory located on the 56-acre Whitby property. A truck and passenger car tire plant is already under construction and scheduled for completion early in 1955. The new Pillofoam plant will be a single story structure, 100 feet by 660 feet.

Malcolm Ross Mallory, formerly sales manager of Hugh Russel & Sons, Ltd., steel and metal jobbers, has been named sales manager of the Pillofoam Cushioning Division.

R. E. Hatch, manager of the Sales and Technical Service Division of the Polymer Corp. since 1947, has been promoted to general sales manager. Born in France, Mr. Hatch was graduated from Mt. Allison University with a degree in chemistry. Subsequently, he did post-graduate work on synthetic rubber at McGill University. In late 1942, Mr. Hatch joined the Polymer project, which was just beginning to take shape in Sarnia. In 1945, he joined the Sales and Technical Service Division. His world-wide travels have included numerous trips to Europe where he assisted in the establishment of an agency organization for Canada's synthetic rubber industry.

R. E. Hatch

Promoted to general sales manager by Polymer Corp.

A plant for the manufacture of "Freon" fluorinated hydrocarbons will be constructed immediately at Maitland, Ont., by the Du Pont Co. of Canada, Ltd. Maitland is on the St. Lawrence River between Brockville and Prescott. The plant will be of sufficient capacity to fill all Canadian requirements for these chemicals, now largely imported from the United States, and will use Canadian base materials wherever possible. It is being built adjacent to the company's nylon intermediates plant which went into production a year ago.

Bridgwater Machine Co., Akron, Ohio, has announced the establishment of a new tire mold manufacturing plant, the Bridgwater Machine Co. of Canada, Ltd., in Brantford, Ont., Canada. The new plant, located on a 40-acre site, is already under construction with completion estimated within a few months. The purpose of the new plant is to make company manufacturing services available more quickly and economically to Canadian customers. Initial production at the new plant will consist mainly of tire molds, although its equipment and facilities will be flexible to permit handling other types of machining and contract manufacturing which may be added later.

Manager of the new plant will be Charles R. Daily. Mr. Daily's tire mold manufacturing experience totals thirty years, most of this time being spent with the Bridgwater organization. He was a key figure in the establishment of the company's Athens Machine Division in 1945, and served as plant manager there for a number of years. This plant is devoted exclusively to tire mold making, and is said to be the largest plant of its kind in the world.

Introduces Pliovic EDB90V

To meet increasing demands for extruded wire insulation materials, the Goodyear Tire & Rubber Co., Akron, Ohio, has introduced a new electrical grade vinyl resin designated as "Pliovic EDB9OV." It is a pure polyvinyl chloride resin, first in a series of electrical grade resins soon to be released by the company. Company officials state that the new resin is fully interchangeable with all other approved electrical grade vinyl resins where interchange of resins is permitted. Through extensive development in Goodyear's laboratories, special polymerization and purification techniques were evolved to produce unique physical properties in the new resin. Qualities such as controlled molecular weight, narrow particle size, shape and distribution were achieved, the company states. Also, special emphasis was placed on producing a resin of highest purity in order to meet rigid U. L. requirements. It was emphasized that an outstanding characteristic of the new resin is its ability to dry blend readily into a smooth, free-flowing mix, thus lending itself well to extrusion and calendering operations. The resin is intended for both home and industrial use as insulating covers for T and TW general building wires and appliance wires. It is also expected to find extensive application as cable jacketing.

Erdco Acquires Mittelmann

All of the assets of the Mittelmann Electronics Corp., Chicago, Ill., comprising scientific instruments, precision equipment, technique, many patents, and goodwill have been acquired by Erdco Engineering Corp. of Addison, Ill. Erdco is known for its activities in research, development, design, engineering and manufacturing in the electronic, chemical and mechanical fields. Dr. Eugene Mittelmann, well-known electronics authority and physicist, will continue with his private research, engineering and consultation practice. He will also act as a consultant to Erdco. The combined facilities and talents will enable Dr. Mittelmann to render a more effective consultation and research service to his clientele. The Mittelmann and Erdco inventions will be made available to industry under license or other mutually satisfactory arrangements.

DuPont Promotes Harwick

Robert F. Harwick, former assistant regional sales manager for petroleum chemicals, has been named assistant sales development manager of the Rubber Chemicals Division, E. I. du Pont de Nemours & Co., Inc. He succeeds F. L. Shackelford, who was recently appointed chemicals sales manager in the Dyes & Chemicals Division. Mr. Harwick brings the varied experience of more than 16 years in the chemical, petroleum, and allied fields to his new post. He received his B. S. degree in chemical engineering from Drexel Institute of Technology in 1934.

An index to Volume 75 of RUBBER AGE will be found on Pages 157 to 160 of this issue.

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- Dinopol MOP
- Dioctyl Phthalate
- DIOP
- Kapsol
- KP-23
- KP-90
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- KP-201
- KP-220
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OBITUARIES

Elliot E. Simpson

Elliot E. Simpson, one of the most controversial figures in the modern day rubber industry, died on September 22 at the New York Hospital in New York City, after a brief illness. He was 54 years of age. At the time of his death Mr. Simpson was associated with L. Drexsage & Co., Inc., and T. A. Maguire & Co., both of 29 West 34th St., New York, and was believed to have a financial interest in the Giant Rubber Corp. of Lodi, N. J.

Born in 1900, Elliot E. Simpson spent the greater portion of his life in the rubber industry and at various times was engaged in the importing and sale of crude rubber, the manufacture and distribution of rubber products, the reclaiming of rubber, and almost every other branch of the field. He was employed originally by his father, David P. Simpson, who operated as a crude rubber broker at 116 Broad Street in New York, and during his lifetime appeared as a principal or an associate with such companies as Simpson & Simpson, Inc., Simpson Rubber Products Corp., Rubber Brokers, Inc., Sanitas Rubber Products Corp., and Consumers' Rubber Refining Co.

Mr. Simpson's interests extended beyond the rubber field, since at one time he was associated with the New Broad Publishing Co., publishers of "Broadway Brevities," the sale of which was prohibited in 1932. He was also interested in one or more dance halls, since sometime during the 1935 period he was president of the Five Borough Dance Hall Owners' Association. Other non-rubber companies with which he was connected at one time or another included the Equitable Publishing Co., Inc., and the Madison Paper Co.

Mr. Simpson came into national prominence shortly after the United States entered World War II. Appearing before various Congressional committees holding hearings on the rubber situation, he made the spectacular claim that this country could readily furnish 10,000,000 tons of scrap rubber and severely criticized those sponsoring a synthetic rubber industry. For a short period he served as counsel for a special sub-committee of the House Committee on Coinage, Weights and Measures appointed to investigate the rubber situation and attempted to prove "there is absolutely no need whatsoever for curtailment of rubber." He strongly criticized the report and suggestions of the Baruch Rubber Committee. Because of his sensational charges, he received the attention of the public press, but was the object of strong protest from the rubber manufacturing and importing field.

Mr. Simpson had lived for many years at 1165 Park Avenue in New York. He leaves a widow, Mrs. Lorraine Drexsage Simpson, who was president of several of the companies with which he was associated, his father, and two sisters.

Warren H. Jones

Warren H. Jones, 54, manager of the Millville, N. J., plant of the West Co., Phoenixville, Penna., died on October 7 at the Millville Hospital. Born in Rockaway Beach, Long Island, N. Y., Mr. Jones was graduated from Cornell University with a degree in chemical engineering. In 1923, Mr. Jones joined the Pharis Tire & Rubber Co. of Newark, Ohio, and served as chief chemist and assistant superintendent. Four years later, he joined the Rubber Service Laboratories Co. of Akron, Ohio, as a technical representative. In 1929, Mr. Jones joined the Murray Rubber Co. of Trenton, N. J., as technical assistant, and in 1930, he became associated with the General Cable Corp. For the next ten years, Mr. Jones worked in General Cable's plants in Rome and Buffalo, N. Y., and at Perth Amboy, N. J. In 1942, Mr. Jones became associated with the DeVilbiss Co. of Toledo, Ohio, as rubber plant manager, and one year later joined the Owens-Corning Fiberglas Corp. in Toledo as a product development engineer. With Owens-Corning, he also served in the Textile Sales Division in New York. Mr. Jones went to Millville in 1950 to supervise and to set up the Millville branch of the West Co. Funeral services were held on October 8 in Millville. He is survived by his wife and two daughters.

Glen S. Hiers

Dr. Glen S. Hiers, assistant research director of the Collins & Aikman Corp., Philadelphia, Penna., died of a heart attack on September 7. He was 58 years old. Born in Connersville, Ind., Dr. Hiers received his B.S. degree from Miami University at Oxford, Ohio, in 1919. He received the M. A. degree from Northwestern University in 1921 and an M. S. from the University of Illinois in 1924. In 1926, he received his Ph. D. in chemistry from the latter university. Dr. Hiers joined Collins & Aikman in 1928, and for the next three years worked at the Mellon Institute in Pittsburgh, Penna., on a company fellowship. He is survived by his wife and two sons.

Frederick M. Kassinger

Frederick Melvin Kassinger, general auditor of the General Tire & Rubber Co. since 1924, died of a cerebral hemorrhage on September 28 in St. Thomas Hospital, Akron, Ohio. Mr. Kassinger, 55 years old, had been with the company for 37 years. He attended Actual Business College and joined the company in 1917. He was past-president of the Akron Chapter of the National Association of Cost Accountants, and was a member of the National Office Managers Association and of the Institute of Internal Auditors. He leaves his wife and son.

Raymond Welts

Raymond Welts, advertising manager of the Dewey and Almy Chemical Co., Cambridge, Mass., died of a heart attack on September 21. Mr. Welts, who was well known in New England advertising, sales and merchandising circles, joined Dewey and Almy in 1948. A former advertising counselor, he organized the Harriman-Welts Products Co., manufacturers' distributing agency, which was discontinued during World War II when Mr. Welts served as chief, Wholesale-Retail Trades Section, Region I, War Production Board. After the war, the company was reorganized and continued until Mr. Welts joined Dewey and Almy. Born in Caribou, Maine, Mr. Welts studied at Bowdoin College and Boston University. He was a member of the Alpha Delta Phi fraternity and the Advertising Club of Boston and served in the infantry in the first World War. He is survived by his wife, a son and a daughter.

Carl T. Risberg

Carl T. Risberg, an officer of the Milwaukee Leather Belting Co., died on September 25. He was 65 years old. Mr. Risberg, who was born in Minneapolis, Minn., is survived by his wife and three daughters.

James B. Conley

James B. Conley, sales representative for the Peerless Cement Co. of Stoughton, Mass., died on September 1. He had been associated with the company for twenty-six years.

Takes New Research Post

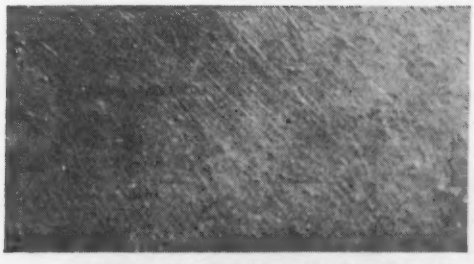
Dr. Albert W. Meyer, for the past three years in charge of the New Materials Department of the U. S. Rubber Co. at Passaic, N. J., has been appointed to the newly-created position of director of exploratory research of the Diamond Alkali Co. In other changes, C. C. Brumbaugh was named director of research for atomic energy, alkali and electrolytic products, while Thornton F. Holder has been named research coordinator and patent counsel. Both posts are newly-created. Dr. Meyer will conduct both basic and applied research on new products and processes. Dr. Meyer had been a member of U. S. Rubber's technical staff since 1934. As head of the New Materials Department, he directed research on synthetic rubber and plastics and supervised pilot plant activities. In this capacity, he assisted in the development of a new class of tough plastics. He also supervised the analytical research and control laboratories. During World War II, Dr. Meyer was actively engaged in the synthetic rubber research program for the Office of Rubber Reserve. He received his B. S. and Ph. D. degrees in chemistry at the University of Chicago.

An index to Volume 75 of RUBBER AGE will be found on Pages 157 to 160 of this issue.

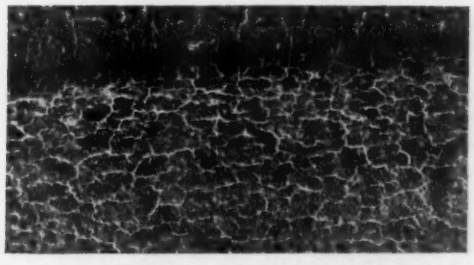
No sign of checking. The rubber insulation on this wire contains Sunoco Anti-Chek. Compare it with the sample at the right.

Surface checking is clearly evident in the rubber covering of this wire—which does not contain Sunoco Anti-Chek.

STOP SURFACE CHECKING AND CRACKING WITH SUNOCO ANTI-CHEK



Sunoco Anti-Chek keeps black sidewalls smooth... even after prolonged storage.



Notice the cracking and checking of the sidewall on this tire which does not contain Sunoco Anti-Chek.

Sunoco Anti-Chek is unique . . . there's no other anti-checking wax like it. It's a narrow-cut primary product, not a blend. It is completely controlled from crude oil to finished product by the same company that originally developed it. And it is made in the most flexible wax plant in the world. To you this means a completely uniform product that can be depended on for the same excellent results tomorrow, next year, 10 years from now!

Detailed information on the many advantages of Sunoco Anti-Chek is given in a new technical bulletin. To get a copy, call your Sun Oil Company representative or write Dept. RA-10.

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FOR DICING SHEET STOCK

The Famous CUMBERLAND "Stair-Step" Dicer

Here at last is the answer to your problems of dicing rubber or vinyl sheet stock. Produces perfect cubes ranging in size from ⅛ to ½" by merely changing knives.

Comes in two sizes designed to handle sheets up to 7" or 14" in width. Other sizes made to order.

Input speeds range from 10 to 125 feet per min. depending on material and size of cube desired.

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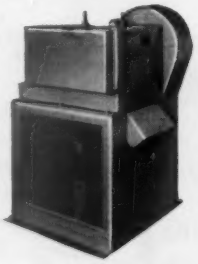

As a chopper, **this machine efficiently cuts rubber and vinyl slabs into small pieces. Two sizes available to handle stock widths up to 14 or 24 inches.**

As a dicer **in modified form, handles principally vinyl sheet stock. A less expensive machine though less universal than the "Stair-Step" Dicer shown above.**

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NEW GOODS

Neo-Sol Industrial Gloves

Charleston Rubber Co., Stark Industrial Park, Charleston, S. C., is producing an all-neoprene protective glove for industrial use. Called "Neo-Sol," the new glove is made of neoprene and is black in color, with a red roll at the cuff and a red lining. It is made with curved fingers for easy action and is available with either "Grip-Saf" hand or smooth finish. The Neo-Sol is manufactured in five sizes, four weights and

in lengths from 10½ to 18 inches. The company reports that after soaking the Neo-Sol and other brands of neoprene gloves in fuel oil and methyl isobutyl ketone, the tensile strength of the Neo-Sol was from 1½ to 2 times greater than the other gloves. Its puncture resistance was from 1½ to 3 times greater. In swelling tests, the other neoprene gloves swelled more than the Neo-Sol, some up to twice as much.

Quaker Plastic Pipe—Series 200

A new lightweight flexible plastic pipe has been developed by the Quaker Rubber Corp., Division of H. K. Porter Co., Inc., Tacony and Comly Sts., Philadelphia 24, Penna. "Quaker Plastic Pipe, Series 200," is made of 100% virgin polyethylene resin and guaranteed to be non-toxic. It will not rust, rot or corrode, is easily handled and requires no special tools to install. The company says it is economical and will last indefinitely. Typical applications include cold water systems, farm piping, sewerage, waste and water service lines. It can also be used for conveying industrial chemicals and gases, and is available in all sizes.

Santa Claus Squeeze Toy

Bayshore Industries, Inc., P. O. Box 151, Elkton, Md., has added a 9½-inch-tall Santa Claus to its line of Squeeze Toys. Other new Squeeze Toys released for the Christmas trade are a Kangaroo, a Lion and a Clown. The company's line of larger Squeeze Toys has been increased by "Scamper" the deer, "Chopper" the squirrel and "Slicker" the fox. All are colorful and decorated in non-toxic paint.

Koylon Foam Bed Pillows

U. S. Rubber Co., 1230 Avenue of the Americas, New York 20, N. Y., has designed a new line of foam pillows in three sizes. The "Koylon" foam bed pillows are tapered on all sides and each has a percale cover with zipper opening that can easily be removed for washing. Made of very soft foam, they contain no

feathers, dust, down or lint, and are said to be allergy-free. The small or standard size is 23½ by 16½ by 5½ inches; medium or large size is 24½ by 17½ by 6 inches, and the giant size is 26 by 18½ by 7 inches. Large and giant sizes are individually packaged in transparent plastic.

Converse "Patters" Footwear

Converse Rubber Co., Malden 48, Mass., has introduced a new line of rainy day footwear for milady called "Patters". The new rain boots weigh only 10 ounces per pair and are said to provide complete rainy-

day protection. Made of nylon, the boots are supplied with two level-tread lasts, flat heel and Cuban. The rubber-soled boot is available in three colors, "Raintan", black or gray.

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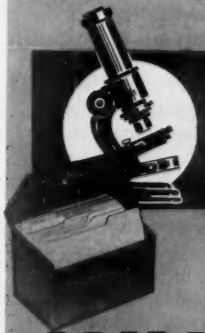

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Whatever your color problem, bring it to Williams. Our 75-year experience can often save you time, money, and headaches in proper color formulation.

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If you are looking for answers to your rubber and plastics equipment problems, you will find them at EEMCO. Yes, they offer smoother sailing on many production problems with the machines which bear the EEMCO trademark. Skillfully designed by qualified engineers—and made by workmen with many years of experience—they offer the utmost in quality, design and workmanship. Serving manufacturers throughout the world, EEMCO rubber and plastics processing machines have proved their worth. EEMCO has its own Foundry, Machine Shop, and Engineering Department to insure fast delivery. Get prices and delivery dates from EEMCO where only the best has been built for many years.

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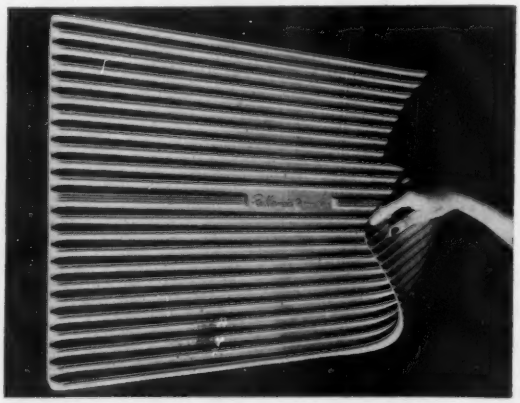
Multi-Purpose Container

Dapol Plastics, Inc., 90 Grove St., Worcester, Mass., has introduced the "Kitchen 'N Freez-All Can", an 8-quart multi-purpose container molded of Bakelite polyethylene. The product can serve as a pail, wastebasket, ice bucket, trash can, food hamper or for other home uses. Because it stays flexible at sub-zero temperatures,

this semi-rigid container is useful for storing foods and liquids such as homemade ice cream in a refrigerator or freezer. The unit has a removable metal handle. A removable cover, also made of polyethylene, fits on snugly to form a tight seal. The container stands about 10 inches high and is almost nine inches in diameter at the top. It is available in red, yellow or natural white.

All Weather Door Mat

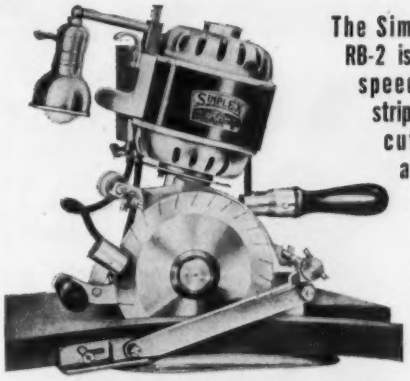
One of the new products recently introduced by the Wooster Rubber Co., 1255 East Bowman St., Wooster, Ohio, is a 17½- by 28-inch "All Weather Door Mat." The new mat has tapered top ribs that are self draining



and ribbing on the under surface to prevent water from being trapped under the mat. Top ribs are designed to pick up mud and water from shoes. The mat comes in one color only—grey.

SIMPLEX
REG. TRADE MARK

CUT 2500 FEET OF STRIP PER HOUR



The Simplex Model RB-2 is a new high speed, portable strip cutter that cuts efficiently and accurately.

U. S. Patent 2,294,497

The new Model RB-2 has a maximum cutting thickness of two inches, weighs 44.5 pounds, and is available in both A.C. and D.C. types. Manually operated, the machine is capable of cutting up to 20,000 feet of rubber strip in eight hours. A series of slits in the edge of the cutting blade carries water from a reservoir into the cut and not just to the top of the rubber being cut. This method lubricates the entire cut and produces a straight and even edge.

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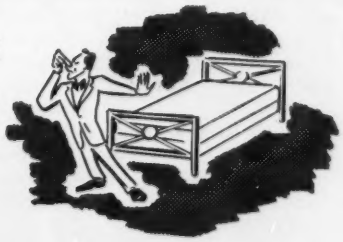
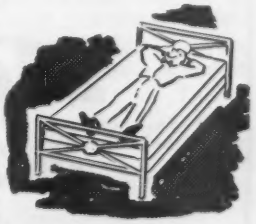


Then its maker discovered that ALAMASK® reodorants mask and modify the obnoxious odor of rubber itself and of the various chemicals used in processing the end product. Buyer resistance was quickly overcome.

Wise rubber goods manufacturers recognize that offensive odors adversely affect sales. ALAMASK reodorants solve the malodor problem, at very little cost, without influencing processing characteristics or rate of cure.



No matter what your rubber product, make it odor-free with ALAMASK, and *watch sales climb.*

ALAMASK reodorants are also effective in controlling malodors caused by stack fumes and plant effluents and can improve olfactory conditions both within and outside your plant.

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AA										X	X	X
AF					X		X		X			
AO or AO-X					X	X	X		X			
AR or AR-F			X		X							
BF or BG-X	X	X	X		X	X	X					
BGM or BGM-X	X	X		X		X						
CY					X				X			
DJ	X	X	X				X		X			
DL							X		X			
H			X		X			X	X	X	X	
LD	X	X	X	X	X	X		X				
ND or ND-X	X	X	X	X	X	X	X	X	X	X	X	
O	X	X	X	X		X	X		X	X	X	X
OS or OS-X	X	X	X	X			X					

For use in latex, the water-dispersible "ALAMASK" form is recommended. The water-dispersible forms are designated by "-X" or "-F" following the "ALAMASK" type name.

For complete information on how ALAMASK can lick your rubber malodor problem, write today to Industrial Reodorants Division ("Alamask"), Rhodia, Inc., 230 Park Avenue, New York 17, N. Y.

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Aldairized Hunting Jacket

Drybak Corp., Binghamton, N. Y., has introduced a new hunting jacket made of sturdy duck fabric. The fabric has been specially processed by a new waterproof coating which permits the escape of perspiration

to assure complete wearing comfort. Called "Aldairizing", the process was developed and patented by the Goodyear Tire & Rubber Co., Akron, Ohio. The Aldan Rubber Co. of Philadelphia, Penna., is presently the exclusive licensee of the process.

Anti-Colic Silicone Nipple

Broadening of its well-known "Anti-Colic" baby nipple line to include a dual purpose silicone nipple and "Sanitab" silicone nipple has been announced by the Davol Rubber Co., Providence, R. I. The nipples are made of silicone rubber supplied by the General Electric Co. Davol Rubber states that the silicone nipples were subjected to 160 steam sterilizations in the firm's laboratories over a 40-day period, and emerged from this ordeal "as good as new". It is claimed that conventional nipples will deteriorate under such conditions. The silicone nipples do not clog, swell or get limp after prolonged use, the company states.

Pace Setter Throw Mat

Ace Rubber Products, Inc., 100 Beech St., Akron 8, Ohio, has introduced a new low priced rubber throw mat for autos. This "Pace Setter" mat is intended as a protector of the original floor mat. Available in red, blue, green, black, mulberry and yellow, it will catch dirt, water, mud and slush tracked into the car.

Air Baby, Inc., 655 Avenue of the Americas, New York 10, N. Y., has introduced a new line of inflatable bumpers for crib and playpen. Made of Krene, the soft, flexible bumper rounds out sharp corners. When inflated, the bumper is eight inches high and six and one-half feet long. The bumper can be inflated orally in a few seconds, the company states.

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- **DOM** Di-2 ethylhexyl Maleate

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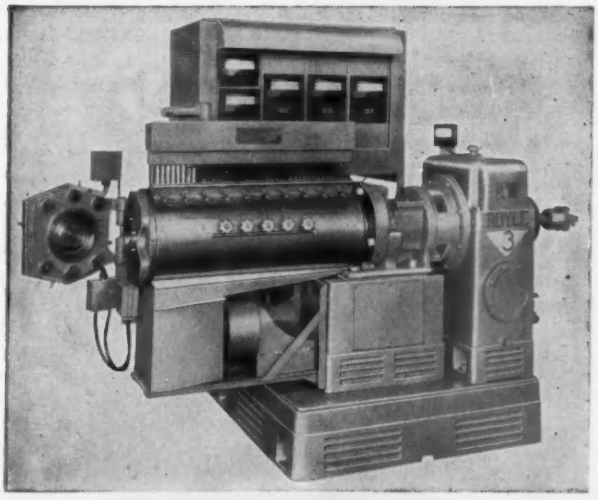

Here are some of the time-tested, money-saving reasons more and more plants are standardizing with Royle Spirod* Extruders for processes requiring maximum flexibility in controlled temperatures — constantly maintained and accurately zoned:

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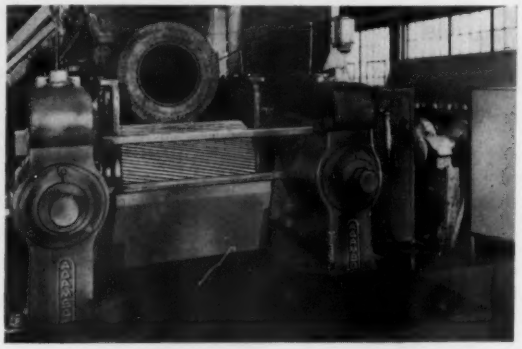
NEW EQUIPMENT

Adamson Giant Cracker

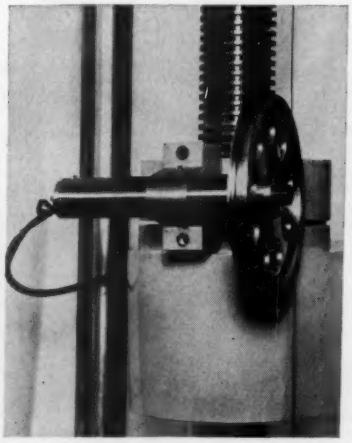
The availability of a 30 x 30 x 48-inch giant cracker for use in cracking off-the-road tires has been announced by the Adamson United Co., Akron, Ohio. In the new unit, because of the high torque requirement, each roll is separately driven from a special gear stand



through wobbler-type universal couplings. The drive incorporates a 600 h.p. motor. The separate gear stand contains all connecting gears and main drive gears, which are herringbone type mounted on fixed centers in antifriction bearings. The main bearings themselves are full circle bronze lined, with automatic feed grease lubrication.

Olsen Strain Measuring Instrument

For measuring large motions on specimens undergoing tension testing, a new type of strain measuring instrument has been developed by the Tinius Olsen Testing



Machine Co., 1261 Easton Road, Willow Grove, Penna. Used in conjunction with the Olsen Model 51 Electronic Recorder, the new unit, called the R-40 Extensometer, has magnifications of 1, ½ and ¼ for recording motions of 10, 20 or 40 inches. Other R-type instruments are available for gauge lengths ranging from 3 to 10 inches.

Baldwin-Dunlop Statigun

The Baldwin-Dunlop Statigun, a portable instrument specifically designed for measuring electrostatic charges on surfaces, is currently being marketed by the Herman H. Sticht Co., Inc., 27 Park Place, New York 7, N. Y. The unit reads electrostatic charges in volts directly on the meter scale without making contact with the object or using test probes. It measures all electrostatic charges from 0 to 300 kv over three ranges, and because

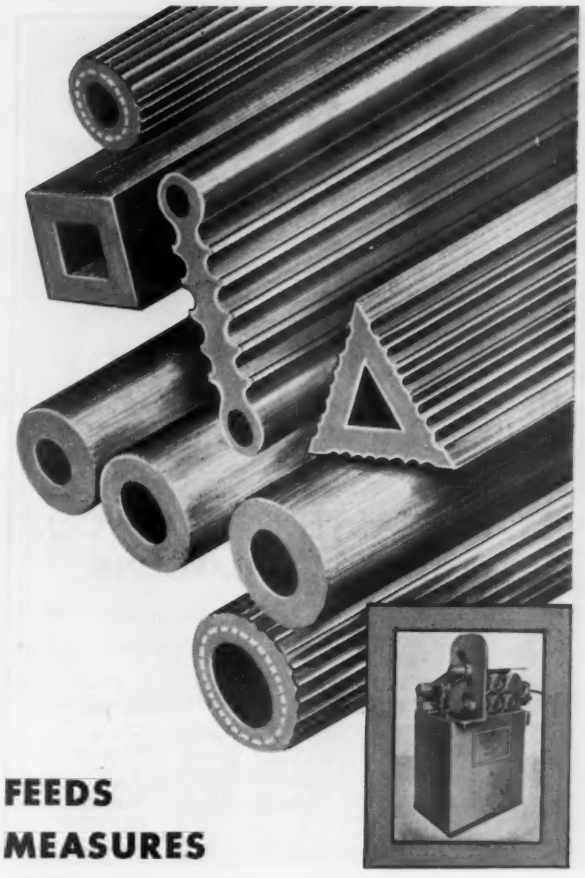
of its compactness and small size it is suitable for measurements and investigations in plant, laboratory or field.

As will be noted in the accompanying illustration, the Baldwin-Dunlop Statigun consists of a pistol-like body and grip which contains the batteries, switches, adjusting rheostats and the indicating instrument. A detachable cylindrical part corresponding to the pistol barrel contains a hermetically-sealed electrometer tube, the capacitance coupling plate, a gravity-operated switch, and a cylindrical sliding sleeve on the barrel which controls the sensitivity and thereby acts as a range selector.

In practice, the instrument is pointed at the object which is suspected of having electrostatic charges, the trigger switch is pulled and after the instrument has been adjusted in accordance with operating instructions, the voltage gradient is read directly from the scale. Accessories are furnished which enable the gun to read density of surface charges and insulation resistance.

New Surface Measuring Instrument

A new instrument for measuring surface roughness has been introduced by the Brush Electronics Company, 3405 Perkins Avenue, Cleveland 14, Ohio. The instrument, manufactured by Brush under an exclusive license from the General Motors Corp., is designed to measure the roughness of any surface. It provides a non-destructive test, a vital factor in most operations. It is versatile, inexpensive, and requires no special knowledge or training for its operation. For the first time, it offers to small businesses, an accurate, yet economical method for such measurement. Likewise, it will enable several sub-contractors located in scattered areas to fabricate parts to the same exacting specifications. The surface roughness range measured extends from 1 to 1000 micro-inches average deviation from the mean surface. A variable cut-off switch permits the separation of waviness and roughness characteristics of surfaces by filtering out wave lengths exceeding .003, .010, or .030 inch.



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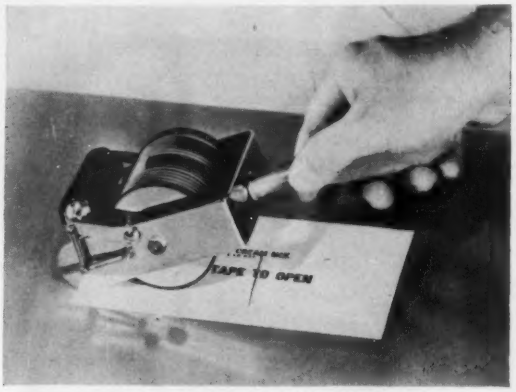
Roll-A-Matic Printing Unit

Fast, economical marking or addressing of rubber goods, shipping cartons, sheet metal, and other curved or flat surfaces is said to be possible with the new Roll-A-Matic unit recently introduced by Dri-Flo, 642 East Ten Mile Road, Hazel Park, Mich. The unit consists of a self-inked printing wheel, with spring return and handle, that applies a mark by rolling. The printing



wheel accepts interchangeable type, of patented Base-Lock design, so that copy may be changed as often as desired. Specially formulated inks can be used for marking rubber, glass, plastics, ferrous and non-ferrous metals, wood, cloth, and paper. A special feature of the Roll-A-Matic is its light weight (23 ounces), for continuous use without fatigue. All metal parts are of cadmium plated steel. Ink rollers are of top quality Spanish felt for high absorbency and even application. Several thousand impressions are claimed for a single inking. A wide variety of inks, either dye-type, pigmented, wash-fast, or indelible, may be used, in assorted colors.

Calrod Vane-Type Heater

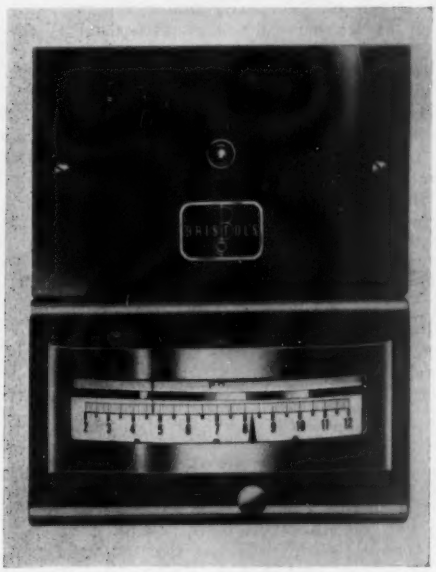
A new vane-type Calrod heater for air and surface heating has been announced by the Industrial Heating Department, General Electric Co., Schenectady 5, N.Y. The new heater is designed for a multitude of applications including pipe, platen, valve and pump, process machinery, compound tanks, and machine surface heating. It is manufactured by pressing a .315-inch steel sheath Calrod heater against the center of a steel vane $\frac{1}{16}$-inch thick. The U-shaped depression created in the vane accommodates the heating element, and provides a flat surface with conveniently-located holes for easy mounting.

The heater and vane are securely joined by copper brazing, and thus feature a construction that offers the optimum of heat transfer, according to company engineers. A large radiating surface is made possible by the 1¾ inch wide vane, and the new G-E heater resists mechanical shock and vibration. It is rated at 25 watts per linear inch or 14.3 watts per square inch of heater surface. Formable in a sidewise position to a minimum 1½ inch inside radius, the heater vane also can be cupped to fit lengthwise for heating circular surfaces.

The new G-E vane-type heater is available in lengths ranging from 20 to 100 inches, 500 to 2500 watts, for either 115 or 230 volts.

Electronic Indicating pH Controller

A new electronic indicating pH controller available with a variety of electric control actions has just been announced by the Bristol Company of Waterbury, Conn. Featuring a newly developed high-torque, jeweled, millivoltmeter-type movement, the instrument has an easy



to read 7-inch mirror scale, and a dust- and vapor-proof case. The new controller is available in the following electric control actions: Two-position; two-position with normal zone; two-position with proportional-input, and three-position control. It will actuate a wide variety of final control devices, permitting pH control with any type of reagent, whether liquid, gaseous, or solid.

What is said to be a highly accurate and stable **temperature indicating controller,** which uses a thermistor as the sensing element, has been developed by Fenwal, Inc., Ashland, Mass. The new Series 560 is designed to operate in the range of 0 to 600°F., and will be manufactured both as an industrial and as a portable laboratory model.

The **Chempump,** a totally enclosed "canned rotor" pump produced by the Chempump Corp., Philadelphia, Penna., is said to be the first seal-less leakproof unit to be available to general industry. Combining motor and pump in one compact package, the unit eliminates mechanical seals, stuffing boxes and packing glands.

The **Lite-Rite Floor and Equipment Tester** introduced by the Hewson Co., Inc., Newark, N. J., shows whether floors and equipment used in munitions and chemical plants and other hazardous areas are conductive within the limits prescribed by the N.F.P.A. regulations.

An Index to Volume 75 of RUBBER AGE will be found on Pages 157 to 160 of this issue.

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(Volume XVII)

(Prepared by the Institution)
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REVIEWS

BOOKS

Synthetic Rubber. Edited by G. S. Whitby, C. C. Davis and R. F. Dunbrook. Prepared under the auspices of the Division of Rubber Chemistry, American Chemical Society. Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. 6 x 9 in. 1044 pp. $18.00.

Long-awaited and long-heralded, this book is the first truly exhaustive and authoritative account of synthetic rubber. The past few years have witnessed the publication of several excellent books on the subject, including Marchionna's "Butalastic Polymers," the Houwink works on "Elastomer and Plastomers," Meyer's "Natural and Synthetic High Polymers," Barron's "Modern Synthetic Rubbers," and Mark's "Physical Chemistry of High Polymeric Systems," but none of the previous works have had the breadth and scope of the present volume. Placed in the capable hands of a three-man editorial board, with Dr. Whitby as editor-in-chief, the book actually draws together the knowledge and experience of thirty-eight authorities, each of whom has special familiarity with the aspects on which he writes.

There are 26 chapters in the book and their authors read like a who's who of the rubber field. The tremendous scope of the work can best be visualized by listing the chapter titles, the authors being shown in parentheses: 1—Introduction (G. Stafford Whitby); 2—Historical Review (R. F. Dunbrook); 3—Manufacture of Dienes from Petroleum (C. E. Morrell); 4—Manufacture of Butadiene from Alcohol (W. J. Toussaint and J. Lee Marsh); 5—Preparation and Production of Dienes by Other Methods (Harry L. Fisher); 6—Manufacture of Styrene Monomer (J. E. Mitchell and J. Lawrence Amos); 7—Manufacture of GR-S (John W. Livingston and John T. Cox, Jr.); 8—Emulsion Polymerization Systems (C. F. Fryling); 9—Chemical Study of the Structure of Diene Polymers and Copolymers (C. S. Marvel and Henry E. Baumgarten); 10—Physical Chemistry of Synthetic Rubbers (Lawrence A. Wood).

Also, 11—Processing and Compounding of GR-S (R. P. Dinsmore and R. D. Juve); 12—Physical Test Methods and Polymer Evaluation (A. E. Juve); 13—Aging and Stabilization of GR-S (John O. Cole); 14—Use of GR-S in Rubber Manufacture (R. A. Crawford); 15—Synthetic Rubber in Wires and Cables (John T. Blake); 16—Synthetic Hard Rubber (Frank S. Malm and Henry Peters); 17—Reclaimed Synthetic Rubber (F. L. Kilbourne, Jr.); 18—Synthetic Rubber Resins (J. D. D'Ianni); 19—GR-S Latex (L. H. Howland); 20—Latex Masterbatching (J. W. Adams and L. H. Howland); 21—Diene Polymers and Copolymers other than GR-S and the Specialty Rubbers (W. K. Taft and G. J. Tiger); 22—Neoprene (Arthur M. Neal and Leland R. Mayo); 23—Nitrile Rubber (Waldo L. Semon); 24—Butyl Rubber (Robert M. Thomas and William J. Sparks); 25—Miscellaneous Synthetic Elastomers (C. H. Fisher, G. S. Whitby and E. M. Beavers); 26—German Synthetic Rubber Developments (R. L. Bebb and L. B. Wakefield).

It can readily be seen from these chapter titles that the book examines the manufacture of the necessary raw materials, their conversion into synthetic rubbers, and the industrial utilization of the products. Inclusion of a good deal of compounding and processing information, particularly in the chapters devoted to specific synthetics, considerably enhances the value of the book where the majority of rubber chemists and technologists are concerned. Too frequently books of this nature are concerned solely with the chemistry and physics of rubber and leave compounding and processing details to the imagination.

As Dr. Whitby indicates in the preface to the book, the not too distant future is destined to see many significant advances in both the science and technology of synthetic rubber. In the interim period, this first-hand account touching on all aspects of the subject fulfills a real need in the technical literature and will serve as an excellent reference works for a long time to come. The book has complete author and subject indexes, and the editorial board is to be commended for the tremendous work of compilation.

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Fachkunde für die Gummiindustrie. Vol. I. Werkstoffkunde. (Technology of the Rubber Industry. Vol. I. Materials). Edited by Dr. Arthur Springer. Published by Fachbuchverlag GmbH, P. O. Box 67, Leipzig W. 31, East Germany. 6½ x 9 in. 342 pp. DM 12.00 (approximately $3.00). (In German).

The first of ten planned volumes intended to serve as a "guide" to the rubber industry, this book is devoted to materials. It is edited by Dr. Springer who has been awarded the title "Hero of Labor" by the East German Government and who has been assisted by numerous although unnamed specialists of the "People's Rubber Industry." It is basically a textbook designed for the educational training of qualified rubber workers, but begins with phraseology now somewhat familiar to non-communistic countries, stressing the importance of the rubber industry to the planned development of socialism. Further, in the chapter devoted to "History and Economic Importance of Rubber," reference is first made to "Rubber in Capitalistic Production" and later to "Rubber in Socialistic Society."

The technical portion of the book, which is fortunately the greater part, starts with raw materials and extends through softeners, fillers, etc., to sponge rubber, textiles in the rubber industry, and latex technology. The book attempts to acquaint the student, in popular fashion, with any and all materials used in the field. There are chapters about Buna as well as "Synthetic Rubbers of Foreign Countries," about thioplasts as well as silicones, about vulcanization, reclaiming, testing methods, solvents, etc. This portion of the book indicates an extraordinary theoretical and practical knowledge of the topics mentioned. Whether the data is too specialized to be mentally digested by young workers without adequate scientific training is the concern of the compilers. From this reviewer's viewpoint, the technical part of the book seems to be a worthwhile contribution to the literature.

F. P.

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Annual Report on the Progress of Rubber Technology: 1953. Edited by T. J. Drakeley. Published by the Institution of the Rubber Industry, 12 Whitehall, London, S.W. 1, England. 7¼ x 9¾ in. 174 pp. $3.50.

(Available from Book Department, RUBBER AGE)

The latest edition of this valuable annual report (which actually was published in March of the current year) covers the progress made in all branches of the rubber field in the period January-November, 1953. This compromise period was adopted in order to bring out the report earlier in the year following the one under review, and subsequent editions will presumably cover the December-November periods. Like the previous editions, the current work consist of review chapters contributed by experts in the respective branches of the field, including raw rubber, latex, chemistry and physics, synthetic rubber, vulcanized rubber, tires, belting, footwear, mechanical goods, surgical goods, hard rubber, flooring, works processes and machinery and equipment. The section on "Roads," added an edition or two ago, has been continued. No change has been made in any of the classifications covered, but a few changes in contributors are noted. For example, the section on synthetic rubber is done by B. J. Habgood, chemistry and physics by W. C. Wake, hose and tubing by W. D. Bradshaw, and works processes by E. Morris. Author and subject indexes are included as usual.

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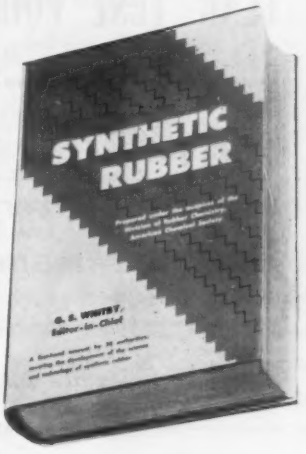
Synthetic Rubber

A first-hand account by 38 authorities, covering the development of the science and technology of synthetic rubber

G. S. WHITBY,
Editor-in-Chief



THIS is the first exhaustive and authoritative account of the subject of synthetic rubber. Prepared under the auspices of the Division of Rubber Chemistry of the American Chemical Society, the book draws together and organizes the knowledge and experience of thirty-eight experts—each of whom has special familiarity with the aspects on which he writes.

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REVIEWS (CONT'D)

Raw Materials for Electric Cables. By A. King and V. H. Wentworth. Published by Ernest Benn, Ltd., Bouverie House, Fleet St., London, E.C. 4, England. 5½ x 8½ in. 362 pp. Price: 42s (approximately $6.00).

Published as the direct result of the widespread interest which stemmed from a series of articles written by the authors some time ago in "The Electrical Journal," this book deals with the raw materials used in electric cable manufacture, their sources and characteristics, and the tests to which they are subjected before acceptance. Since the authors' prime experience lies in the field of power and rubber and plastics cables, respectively, several of the chapters are co-authored with other experts with more direct experience in specific branches of the field, such as aluminum, copper, lead, textile insulants, asbestos, enamelled wire and quality control.

The book has 24 chapters in all, as follows: (1) Copper; (2) Paper; (3) Insulating Oils and Compounds; (4) Black Varnished Cambric; (5) Natural Rubber; (6) Rubber Compounding Ingredients; (7) Gutta-Percha; (8) Synthetic Rubbers; (9) Polyethylene; (10) Polytetrafluoroethylene; (11) Polyvinyl Chloride; (12) Lead; (13) Aluminum; (14) Armor and Reinforcement; (15) Steel; (16) Textiles; (17) Textile Insulants; (18) Wax Impregnants for Textile Insulants; (19) Lacquers; (20) Impregnants for Cable Finishes; (21) Inorganic Materials; (22) Enamelled Wire; (23) Compensating Leads for Thermocouples; (24) Quality Control. It should be evident from these titles that the book is a comprehensive treatise on the raw materials used in electric cables and is a valuable edition to the technical literature on insulated wire and cables in general.

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Gummiteknisk Ravaruhandbok. (Rubber Handbook). Edited by C. Nordenskjöld and L. G. Laurell. Published by the Swedish Institution of Rubber Technology, P.O. Box 7310, Stockholm 7, Sweden. 6 x 8¼ in. 200 pp. Price: Sw. Crowns 30 (approximately $6.00).

The first "handbook" to be printed in the Scandinavian language for the rubber industry, this initial work is devoted exclusively to rubber chemicals and compounding ingredients. Future editions already in the planning stage will also cover machinery and equipment, textiles, services, etc. The present work consists essentially of three major sections, the first containing a classified list of materials, the second a subject index, and the third a list of suppliers. In the classified section, the various materials are systematically arranged by usage, such as accelerators, antioxidants, carbon black, etc., with the chemical composition and specific gravity given in almost all cases. In the subject index, every product is arranged alphabetically, with the specific gravity again shown for convenience. The list of suppliers includes complete names and addresses and, in the case of the Swedish firms, telephone numbers. The book also includes a list of associations and organizations of interest to the Swedish rubber industry and a special section containing measures, units and conversion tables of value to rubber technologists. Although printed in the Scandinavian language, the book contains an explanation in English and an English index. It can readily be used by those not familiar with the Scandinavian tongue.

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Tested Approaches to Capital Equipment Replacement. Published by the American Management Association, 330 West 42nd St., New York 36, N. Y. 6 x 9 in. 94 pp. $3.25.

Adapted from material presented at the AMA Special Conference on Capital Equipment Replacement which was held in New York last May, this special report, as indicated by its title, covers tested approaches. The specific experiences of eight major companies, including Armstrong Cork, Bigelow-Sanford, DuPont and Standard Oil, are covered, under five major classifications, namely, basic considerations, capital controls, procedures for handling capital projects, methods of industrial financing, and performance reports. The techniques and procedures described should prove useful to industry in general.

BOOKLETS, CATALOGS, etc.

Hevea Diseases of the Amazon Valley. By Michael H. Langford. Issued by Instituto Agronomico do Norte, Belem, Brazil. 6¼ x 9 in. 28 pp.

Since its establishment in 1940, the Instituto Agronomico do Norte has conducted investigations on Hevea rubber. One phase of this program has been to study the major Hevea diseases and to develop satisfactory control measures against them. Brief descriptions of these diseases and the measures that have been found effective against them are given in this booklet. Among the diseases discussed are South American Leaf Blight, Phytophthora Pod Rot, Target Leaf Spot, Glomerella Die-Back, Black Crust, Pink Disease and various root diseases. Excellent photographs depicting these diseases and their effect are reproduced. The author, Michael G. Langford, is the principal pathologist of the Division of Rubber Plant Investigations of the U. S. Department of Agriculture and a long-time collaborator of the Institute. A reprint of the article on "Hevea Diseases of the Western Hemisphere" which appeared in a recent issue of the *Plant Disease Reporter* is also available from the Institute on request.

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Neoprene Dipped Goods. (Report No. 52-3). By G. S. Cook and J. C. Fitch. Rubber Chemicals Division, E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Delaware. 6¼ x 9½ in. 54 pp.

The outstanding properties of polychloroprene are well known to the rubber industry. With proper compounding these properties are obtainable in products prepared from either the dry neoprenes or the neoprene latices. This report covers the use of neoprene for those products most conveniently prepared by dipping from latex compounds. Techniques and equipment for preparing neoprene dipped goods are given most detailed treatment only where they differ from those used with natural rubber, since the neoprene latices resemble natural rubber latex colloidally and processing is similar for both. The report deals with dipping methods, leaching, drying and vulcanizing, as well as with equipment for storing, compounding, dipping, drying, etc. A number of suggested formulas are given, including those for industrial gloves, household and surgeons' gloves, meteorological balloons, playballs, doll skins, and metal coatings.

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Le Caoutchouc dans la Route. (Rubber in Roads). Issued by Edition R.C.P., 37 Rue Taitbout, Paris 9, France. 7 x 9½ in. 28 pp. (In French).

As indicated by its title, this booklet is devoted to the application of rubber in roads. Actually, it consists of six short chapters outlining specific experiences with rubber on roads in various European countries, including France, Great Britain, Holland and Italy. Each chapter has been furnished by an expert familiar with installations in his own country. Experiences covered not only include installations but some of the special tests worked out to determine performance. Some data on results ascertained to date is also included. Numerous photographs are utilized to strengthen the text.

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Trends in Technology and Employment. Council for Technological Advancement, 120 So. LaSalle St., Chicago 3, Ill. 6 x 9 in. 24 pp.

This is the first in a new series of pamphlets on technology and employment. It details the principal facts which prove conclusively that employment, especially in manufacturing, continues to rise faster than the population grows, and brings up to date a similar study made back in 1930 by the Machinery Institute. Tabular data on growing and declining occupations is included. For convenience, the major findings are condensed into a two-page summary at the beginning of the booklet.

Institution of the Rubber Industry

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The I.R.I., which was founded in 1921, is now a great association of people engaged in all branches of the Rubber Industry. Its members include rubber producers, manufacturers, scientists, technologists, executives, students and others, in many countries of the world.

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MARKETS NEWS-PRICES

NEW YORK, OCT. 6, 1954

Natural Rubber

Since our last report (September 8), the average price of spot rubber on the New York Commodity Exchange has moved in a range of 212 points, high for the period being 25.62c reached on October 5, and low being 23.50c reached on September 10. The average price of spot rubber for the month of September was 23.99c based on 21 trading days. This compares with an average of 23.26c in August.

It will be noted that almost daily the price of natural rubber keeps "inching up". What is more, the market seems to be strongly entrenched at this new high basis. While much is made in some quarters of the higher rate of absorption outside of the United States, the trade feels that it has been the persistent U. S. consumer demand which has done so much to establish the new price basis.

Now that natural rubber prices have effectively penetrated the historical 25c level, there exists more uncertainty than ever as to what is to be expected. The trend for the present is upward. However, it is expected that the buying on the part of manufacturers will be restricted to nearby rubber as much as possible.

The feeling seems to be that the time is now here when manufacturers will probably concentrate more and more on synthetic rubber. This picture may change, however, if the production of synthetic rubber in the United States is such that consumers find it impossible to obtain the quantities of synthetic needed for their operations.

Tight Supply Situation

The Natural Rubber Bureau reports that considerable discussion has taken place in Washington in the past few weeks in regard to the tight supply and quality situation in the Ambers and Browns. The quality of deliveries of Ambers and Browns against rotation sales of these grades has fallen off sharply and the great bulk of deliveries are unacceptable for stockpiling, thus forcing GSA back into the tight Amber-Brown market to replace the rejected tonnage.

The Amber-Brown discounts have widened somewhat but are still basically too high in comparison with No. 1 R.S.S. and GR-S, and strict stockpiling requirements tend to compound the demand-supply difficulties.

Even if GSA were to attempt to alleviate this condition, it would be hamstrung on two points: (a) it must maintain the approximate 10% Amber-Brown ratio to total stockpile tonnage formerly prescribed by the Munitions Board and now admistered by ODM, and it cannot upgrade until the 10% figure is exceeded; (b) the original directive to GSA specified RMA types which are difficult to obtain since a large portion of the Amber demand is being met from the new Singapore types.

Speaking of Singapore, it has been reported that on October 5, Malayan rubber rose to 73⅛ Straits cents per pound, the highest level since the first quarter of 1953.

Price Data

Closing Rubber Prices on New York Commodity Exchange (No. 1 R.S.S. Contract)

FROM SEPTEMBER 9 TO OCTOBER 5

Sept.	Spot	Dec.	Mar.	May	July	Sales
9	23.62	24.24	24.30	24.35	24.35	59
10	23.50	24.20	24.30	24.35	24.35	17
11	....	....	....	....	....	....
12	....	....	....	....	....	....
13	24.12	24.60	24.75	24.80	24.85	90
14	24.00	24.52	24.70	24.75	24.75	28
15	23.88	24.35	24.50	24.55	24.55	90
16	24.00	24.50	24.60	24.65	24.70	76
17	24.00	24.50	24.62	24.70	24.77	63
18	....	....	....	....	....	....
19	....	....	....	....	....	....
20	24.25	24.70	24.85	24.90	24.95	26
21	24.12	24.50	24.60	24.70	24.70	22
22	24.25	24.70	24.85	24.90	24.95	109
23	24.12	24.55	24.72	24.70	24.70	12
24	24.38	24.84	25.00	25.00	25.05	94
25	....	....	....	....	....	....
26	....	....	....	....	....	....
27	24.38	24.75	24.90	24.90	24.90	51
28	24.50	24.98	25.15	25.14	25.15	67
29	24.50	24.90	25.00	25.05	25.05	92
30	25.00	25.30	25.40	25.40	25.40	141
Oct.						
1	25.00	25.24	25.30	25.30	25.30	42
2	....	....	....	....	....	....
3	....	....	....	....	....	....
4	25.50	25.90	25.85	25.83	25.83	85
5	25.62	25.85	25.75	25.75	25.75	52

Outside Market

No. 1 Ribbed Smoked Sheets:	
Spot	.25⅝
October	.25⅝
November	.25⅝
Thin Latex Crepe:	
Spot	.29
Thin Brown Crepe, No. 2	.25
Smoked Blankets	
Flat Bark Crepe	.21¼

London Market

(Standard Smoked Sheets)

December	25.23 - 25.38
Jan.-Mar.	25.23 - 25.38

Singapore Market

(Standard Smoked Sheets)

November	25.27 - 25.31

Synthetic Rubber

(Dry Types—Per Pound)

Butaprene NF	.490 - .500
Butaprene NL	.500 - .510
Butaprene NAA	.540 - .550
Butaprene NXM	.580 - .590
Chemigum 30N4NS	.500 - .510
Chemigum 50N4NS	.500 - .510
Chemigum N3	.580 - .590
G-E Silicone Rubber (compounded)	2.50 -3.60
G-E Silicone Gum (not compounded)	4.00 -4.20
GR-I	—— - .230
GR-S	—— - .230
Hycar OR-15	.580 - .590
Hycar OR-25	.500 - .510
Hycar OS-10	.550 - .560
Neoprene Types AC and CG	—— - .550
Neoprene Type GN	—— - .410
Neoprene Type GN-A	—— - .410
Neoprene Type GRT	—— - .420
Neoprene Type KNR	—— - .750
Neoprene Type Q	—— -1.00
Neoprene Type S	—— - .420
Neoprene Type W	—— - .410
Neoprene Type WRT	—— - .450
Paracril B	.500 - .510
Paracril BJ	.500 - .510
Paracril C	.580 - .590
Silastic (compounded)	1.95 - .338
Thiokol Type A	—— - .470
Thiokol Type FA	—— - .640
Thiokol PR-1	—— - .950
Thiokol Type ST	—— -1.000

Middling Upland Quotations

	Sept. 8	October 6		
	Close	High	Low	Close
Oct.	34.54	34.80	34.72	34.79
Dec.	34.90	35.01	34.89	34.99
Mar.	35.30	35.27	35.15	35.26

Synthetic Rubber

Although official Washington has not made public any statement in connection with synthetic rubber prices, the president of the Rubber Trade Association of New York recently advised members to the effect that the Federal Facilities Corporation is not considering any revision in synthetic rubber prices either up or down in the foreseeable future.

There had been widespread reports in the world trade that there would be an upward revision in the synthetic rubber price. As a result of these rumors, the natural rubber market exhibited some hesitancy around the middle of September.

Synthetic Plant Disposal

An interesting comment on the question of synthetic plant disposal comes from H. C. Bugbee, writing in a recent issue of *Natural Rubber News*. Mr. Bugbee writes that the skeptics who predict that disposal of the synthetic rubber producing facilities will fall through must realize the fact that the alternative, continued government ownership, is one which a Republican or even a Democratic Congress or administration would find hard to justify and live with several years to come.

Mr. Bugbee states that there is no longer a "security reason" for government ownership and the "monopoly bug-a-boo" is surmountable. The only valid reason, therefore, for Congress to negate a favorable FFC recommendation would be on the basis that the bids are too low.

By the time the Disposal Commission's recommendations are ready to be filed with Congress, the total of all bids should be somewhere in the realm of the late Congressman Shafer's estimate of "fair return", $300,000,000 to $350,000,000.

World Synthetic Position

The Secretariat of the International Rubber Study Group reports that in the first six months of the current year, 351,211 long tons of synthetic rubber were produced in the world, including 306,579 long tons in the United States, 41,707 long tons in Canada, and 2,925 in West Germany.

If world production maintains this pace for the balance of the year, total output will approximate 615,000 long tons, and this figure would be about 300,000 long tons less than was produced in 1953 and almost 200,000 long tons less than was produced in 1952.

World Consumption Figures

World consumption in the first six months of 1954 has been put at 365,000 long tons. If this consumption rate holds for the balance of the year, total consumption in 1954 will be in the order of 730,000 long tons. This figure will fall short by 130,000 long tons that set in 1953 and in 1952. Since 1943, the record year was 1946, when 912,500 long tons of synthetic rubber were consumed worldwide.

Principal world stocks of synthetic rubber, as indicated by the Rubber Study Group, show that at the end of June, 1953, there were about 157,000 long tons on hand in the United States, 4,300 long tons in the United Kingdom, about 3,000 in France, about 3,000 in Germany, something like 200 long tons in Australia and the Netherlands and almost 2,000 long tons in Japan. This makes for a grand total of 182,500 long tons on hand as of June 30, 1954.

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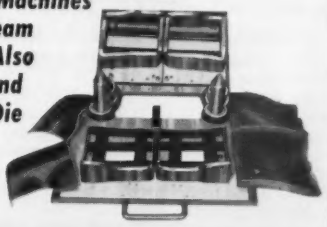

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MARKETS

NEWS-PRICES

NEW YORK, OCT. 6, 1954

Reclaimed Rubber

According to figures compiled by the International Rubber Study Group, the United States, in the first half of 1954, produced 129,259 long tons of reclaimed rubber. By projecting these figures for the rest of this year, reclaim production in the U.S. will run about 60,000 long tons less than in the previous year.

The United Kingdom, however, is running ahead of last year's figures. In 1953, the U.K. produced 30,866 long tons of reclaim. At the current rate of production, total production of reclaim in the U.K. in 1954 will approximate 40,000 long tons. In the first half of this year, the U.K. produced 19,225 long tons.

Germany, as the other large producer of reclaim, is running at a level comparable to 1953 production when output hit 26,828 long tons. In the first half of 1954, 14,855 long tons were produced, the Rubber Study Group states.

(Prices for All Areas Except Calif.)

	per lb.
Premium Grade Whole Tire	.10½
First Line Whole Tire	.10
Second Line Whole Tire	.09½
Third Line Whole Tire	.09¼
Fourth Line Whole Tire	.08¾
Black Carcass	.14¼
No. 1 Light Colored Carcass	.20¾
No. 1 Select Peel	.11¾
No. 1 Peel	.10½
Butyl Tube Reclaim	.12½
Natural Rubber Black Tube	.15
Natural Rubber Red Tube	.21
Natural Rubber Gray Tube	.21

Scrap Rubber

Trading on the scrap rubber market continues dull. Some activity was noted in Butyl tubes. Otherwise, the market continued the lethargic pace evident for the past few months. In view of the light activity, prices are being considered as nominal. Supplies are reported to be plentiful.

According to the U. S. Commerce Department, exports of scrap rubber in June of this year totaled 2,003,675 pounds valued at $59,586. This compares with the 1,797,580 pounds valued at $47,122 exported in May of this year.

The trade is hesitant to predict what course the scrap rubber market will take for the balance of this year. It is generally expected, however, that the market will maintain its low levels during the next few months.

(Prices Delivered Akron)

Mixed tires	ton	13.50
Light colored carcass	lb.	.05½
No. 1 peelings	ton	45.00
No. 2 peelings	ton	30.00
No. 3 peelings	ton	24.00
Buffings	ton	17.00
Truck and Bus S.A.G.	ton	17.00
Passenger S.A.G.	ton	15.00
Natural Rubber Red Tubes	lb.	.08
Natural Rubber Black Tubes	lb.	.05¼
Butyl Rubber Tubes	lb.	.03

Tire Fabrics

Trade reports have it that nylon appears to be well on its way toward duplicating what rayon did a dozen years ago—becoming the favorite fabric of tire manufacturers. Today, twelve companies are incorporating nylon into 27 premium and standard brand passenger tires, and more are reported to be on the way. Besides these figures, nylon has been widely used in airplane and truck tires for several years, and is constantly replacing rayon in casings of this type.

During the early years of World War II, and with the advent of synthetic rubber, rayon moved to the fore. Because of its greater strength and its ability to withstand heat, rayon began replacing cotton in tires as fast as it became available. Nylon, after years of development and experimentation, is now gradually taking the place of rayon.

Joint Industry Efforts

The widespread adoption of nylon cord results from joint efforts by tire producers, machine designers and DuPont fiber experts to develop new technology for building tires of hot-stretched fiber. Before this technique was perfected, nylon had a tendency to grow in tires, causing them to lose shape.

The new process actually bolsters the strength of the cord while its resistance to heat and impact remains at the same high level. This has led some companies to proclaim that the improved nylon cord is stronger than steel cable, pound for pound. Nylon's resistance and strength are so great that impact failures of tires made with the material are virtually unknown.

Nylon's increasing penetration of the tire field was underscored by the fact that every tire used in the 1954 Indianapolis 500-mile race was reinforced with nylon. It was the first time that Firestone announced the fiber content of its racing tires.

Reduces Super Cordura Price

DuPont has announced a reduction in its price for 1650 and 1900 denier "Super Cordura" high tenacity rayon yarns. The new price for both deniers is 64c a pound, the former price having been 67c a pound. The new price became effective with orders taken in September.

It will be remembered that DuPont first started delivery of Super Cordura yarn about a year ago and at that time the 67c price was announced. The new price of 64c narrows the premium charged for Super Cordura to 3c a pound over the price of the company's regular high tenacity tire yarn.

Early in August, North American Rayon Corp. had made known that its new 1650 denier super high tenacity rayon would sell at 64c a pound, or 3c a pound over the regular high tenacity yarn price.

(Prices f.o.b. Shipping Point)

Rayon Tire Cord		
1100	lb.	.76½
1650	lb.	.73½
2200	lb.	.73
Nylon Tire Cord		
210	lb.	2.00
840	lb.	2.00
Rayon Graded Fabric		
1100	lb.	.72
1650	lb.	.69½
2200	lb.	.68½
Cotton Chafers		
14.4 oz. (per square yard)	lb.	.74
9.25 oz. (per square yard	lb.	.69½
11.65 oz. (per square yard)	lb.	.66
8.9 oz. (per square yard)	lb.	.71

Liquid Latex

Natural: According to Latex & Rubber, Inc., the Hevea latex market continues soft with supplies greater than estimated consumption. Production continued at a high level at least through August. Malayan and Singapore August exports totaled 8,921 tons, with 2,364 tons (26.4%) destined for the United States.

With estimates of U.S. imports and consumption being what they are, in the order of 7,000 tons monthly imports and 6,000 tons monthly consumption, it is obvious that a reduction in imports must be made or U.S. storage capacity will again be heavily burdened. The recent U. S. latex market has been dominated by factories liquidating surplus purchases at discounts from the current level of 32½ to 33½c latex in the hands of primary importers.

Synthetic: It is estimated that 2,589 long tons of GR-S latex were produced in July, and 2,552 long tons consumed. Stocks as of July 31 were estimated at 5,536 long tons. U. S. prices for GR-S latices range from 21½ to 28c per pound total dry solids in tank cars, f.o.b. works.

It is also estimated that 448 long tons of neoprene latex were produced in July of this year, while consumption stood at 428 long tons. At the end of the month, there were 990 long tons in stocks on hand.

N-type latex production in July is estimated at 643 long tons. Consumption in the same month is set at 317 long tons, and there were 807 long tons in stocks on hand at the end of the month.

Cotton

The price of middling uplands on the New York Cotton Exchange has moved in the range of 80 points since our last report (September 8), high for the period being 35.90c reached on September 24, and low being 35.10c reached on October 4. The average price of middling uplands for the month of September was 35.46c based on 21 trading days. This compares with an average of 35.19c in August.

According to the New York *Journal of Commerce*, the cotton crop has staged another of those "flip-flops" for which it is famous. In practically all parts of the Cotton Belt where ginnings are well advanced, the crop is proving to be substantially larger than indicated only a few weeks ago. In its September estimate, it will be remembered, the Crop Reporting Board reduced the prospect by 848,000 bales to 11,832,000 bales.

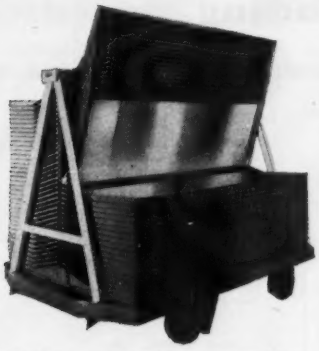
On the basis of *Journal of Commerce* computations, it is estimated that the crop as of the end of September approximates 12,752,000 bales, or 920,000 bales more than the Government's September estimate and slightly higher than the August estimate of 12,680,000 bales.

Japan's raw fiber import budget for the next six months includes 692,000 bales of raw cotton from the United States out of 1,070,000 bales previously reported. Other sources for Japan are Egypt, 33,000 bales; Argentina, 20,000; Brazil, 650,000, and the sterling area, 260,000 bales. Mexico, previously the second largest supplier, is not listed.

The Department of Agriculture has announced that the parity price for cotton as of September 15 was 34.84c compared with 35.09c on August 15.

SPADONE

SPRING LEAF TRUCKS



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SPADONE MACHINE CO. INC.

SOUTH NORWALK CONNECTICUT

IMS PURE SILICONE RUBBER MOLD LUBE

The IDEAL SILICONE MOLD PARTING AGENT for All Quality Rubber Goods

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1 to 11 Cans, ea. . . $2.00
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Unbroken Gross . $197.40

Quick, easy to apply from handy pressurized can

The economical method of applying costly silicone to quality rubber molds. Reduces rejects!

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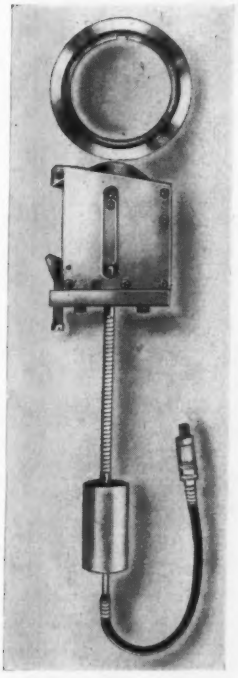

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- Maximum knife life with minimum set-up time.
- Eliminates spring adjustments.
- Uniform cutting pressure.
- Ideal for narrow cuts.
- ¼" cuts can be achieved by double banking of ½" levers.
- This lever can be run upside down or sideways.
- Interchangeable with your existing slitters or by a simple modification of your slitting machine.

On making narrow cuts investigate multiple manifolding to reduce down time to 30 seconds between changes of width.

Slitting, scoring and perforating operations on Printing Presses, Coaters, Laminators, and other Web Processing Equipment can be done with the Model 654.

Easily installed with remote control of slitting pressures.

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JOHN DUSENBERY COMPANY, INC.

271 GROVE AVENUE, VERONA, N. J. Tel. Verona 8-3915

CURRENT MARKET PRICES

of rubber chemicals and compounding ingredients

OCTOBER 8, 1954

Prices are, in general, f.o.b. works and cover the domestic markets only. Export prices, as a rule, are usually slightly higher, due to packing regulations, special handling, etc.

Abbreviations: bbls., barrels; c.l., carlot; cyl., cylinder; dlvd., delivered; dms., drums; eqld., equalized; l.c.l, less than carlot; M.B., masterbatch; min., minimum; ref., refined; sap., saponified; sp., special; syn., synthetic; t.c., tank cars.

*For Export Only

The arrangement of this section closely follows the Chemical Section of the 1953-54 RUBBER RED BOOK. Readers are referred to the RUBBER RED BOOK for the correct classification of any material or brand name. Suppliers of every material are contacted for price information. However, only those materials are listed for which quotations have been furnished within the past six months. The quotations are not guaranteed and prospective purchasers should contact suppliers for information. Suppliers are requested to send current price information to the Market Editor, RUBBER AGE.

ACCELERATORS

A-1 (Thiocarbanilide)	lb.	.50	.57
A-32	lb.	.66	.80
A-100	lb.	.52	.66
Accelerator No. 8	lb.	—	1.10
Accelerator—49	lb.	.53	.54
Accelerator—552	lb.	—	2.25
Accelerator—808	lb.	.66	.68
Accelerator—833	lb.	1.17	1.19
Accelerator B	lb.	—	.89
Altax	lb.	.48	.50
Ancap *	lb.	.38	.40
Ancatax *	lb.	.48	.50
Ancazate * BU (ET & ME)	lb.	—	1.04
Ancazide * ET	lb.	—	1.04
ME	lb.	—	1.14
Arazate	lb.	—	2.25
Beutene	lb.	.66	.68
Bismate, Rodform	lb.	—	3.00
Butasan	lb.	—	1.04
Butazate	lb.	—	1.04
Butyl Accelerator 21	lb.	—	.89
Butyl Eight	lb.	1.10	1.35
Captax	lb.	.38	.40
C-P-B	lb.	—	1.95
Cumate, Rodform	lb.	—	1.45
Dibenzo G-M-F	lb.	—	2.60
Diorthotolylguanidine	lb.	.57	.58
Diphenylguanidine	lb.	.48	.55
El-Sixty	lb.	.50	.57
Ethasan	lb.	—	1.04
Ethazate	lb.	—	1.04
Ethyl Thiurad	lb.	—	1.04
Ethyl Tuex	lb.	—	1.04
Ethylac	lb.	.93	.95
G-M-F	lb.	—	2.60
Guantal	lb.	.57	.64
Harvex	lb.	.62	.68
Hepteen	lb.	.44	.46
Base	lb.	—	1.85
Kure-Blend MT	lb.	—	.70
Ledate, Rodform	lb.	—	1.04
MBT-XXX	lb.	.49	.51
Merac	gal.	.75	1.05
Mercaptobenzothiazole	lb.	.38	.40
Mercaptobenzothiazyl Disulfide	lb.	.48	.50
Mertax	lb.	.49	.56
Methasan	lb.	—	1.04
Methazate	lb.	—	1.04
Monex	lb.	—	1.14
Mono Thiurad	lb.	—	1.14
Morfex	lb.	.65	.67
2-MT	lb.	—	1.00
NA-22 (for neoprene)	lb.	—	1.50
NOBS No. 1	lb.	.69	.71
Special	lb.	.79	.81
O-X-A-F	lb.	.49	.51
Pentex	lb.	—	1.04
Flour	lb.	—	.21
Permalux (for neoprene)	lb.	—	2.17
Phenex	lb.	.52	.57
Pip-Pip	lb.	—	2.25
Polyac	lb.	—	1.65
R-2 Crystals	lb.	—	4.35
Rotax	lb.	.49	.51
RZ-50	lb.	—	1.00
B	lb.	—	1.00
SA 52	lb.	—	1.14
SA 57	lb.	—	1.04
SA 62	lb.	—	1.04
SA 66	lb.	—	2.60
SA 67	lb.	—	1.04
SA 77	lb.	—	1.04
Santocure	lb.	.69	.76
Selenac (Ethyl, Methyl)	lb.	—	2.60
Setsit-5	lb.	.75	1.05
SPDX-GH	lb.	.64	.69
GL	lb.	—	.95
Tellurac	lb.	—	1.45
Tepidone	lb.	.45	.48
Tetrone A	lb.	—	1.91
Thiofide	lb.	.48	.55
S	lb.	.50	.57
Thionex	lb.	—	1.14
Thiotax	lb.	.38	.45
Thiurad	lb.	—	1.14
Thiuram E	lb.	—	1.04
M	lb.	—	1.14
Trimene	lb.	.56	.58
Base	lb.	1.03	1.06
Tuads, Ethyl	lb.	—	1.04
Tuads, Methyl	lb.	—	1.14
Tuex	lb.	—	1.14
Ultex	lb.	1.00	1.10
Unads	lb.	—	1.14
Vulcacure NB	lb.	—	.45
ZB	lb.	—	.85
ZE	lb.	—	.85
ZM	lb.	—	.85
Z-B-X	lb.	—	2.45
Zenite	lb.	.48	.50
A	lb.	.57	.59
Zenite Special	lb.	.49	.51
Zetax (uncoated)	lb.	.49	.51
Zimate, Butyl	lb.	—	1.04
Zimate, Ethyl	lb.	—	1.04
Zimate, Methyl	lb.	—	1.04

ACTIVATORS

Blue Lead Sublimed (dlvd.)	lb.	.15¾	.16¾
Fish Oil, Hydrogenated, Fatty Acid			
DAR-S (dlvd.)	lb.	.10¼	.12
DAR-HY (dlvd.	lb.	.11¾	.13½
Hydrofol Acids (dlvd.)	lb.	.10½	.16
Hyfac 430 (dlvd.)	lb.	.14¾	.16
Neo-Fat H.F.O. (dlvd.)	lb.	.14½	.15¾
Neutrax (dlvd.)	lb.	.13	.14¾
Stearex Beads (dlvd.)	lb.	.09¾	.10¾
Talene (dlvd.)	lb.	.11¾	.13½
Lime, Hydrated			
Arrowhead	ton	—	20.50
Marblehead	ton	—	16.00
Sierra	ton	—	22.00
Litharge			
Eagle-Picher	lb.	—	.17
SB (dlvd.)	lb.	—	.15
Magnesium Oxide, Heavy			
General Magnesite 500	lb.	.05	.06½
600	lb.	.06	.08
Michigan No. 15	lb.	.06	.06½
Permanente	lb.	.05	.06½
Magnesium Oxide, Light			
Baker's (Neoprene Grade)	lb.	—	.31
General Magnesite (Neoprene Grade)	lb.	—	.30
General Magnesite No. 101	lb.	.21½	.22½
Genmag ML	lb.	—	.25
195	lb.	—	.20½
K & M (Neoprene Grade)	lb.	.30	31

ACTIVATORS (Cont'd)

Magnesium Oxide, Light (cont'd)			
Maglite D	lb.	—	.25
M	lb.	—	.31
Marine's (Neoprene Grade) (l.c.l.)	lb.	—	.30
Michigan No. 30	lb.	—	.25
No. 40 Extra Light	lb.	—	.31
Witco Extra Light	lb.	.32	.35
Oleic Acid			
Emersol 210 (dlvd.)	lb.	.15¾	.17½
L.C.P. Red Oil	lb.	.15¾	.17½
Neo-Fat 90-14	lb.	—	.14
92-04	lb.	.16¾	.18½
Palm Oil Fatty Acid (c.l.)	lb.	.10½	.14
Potassium Oleate (dms.)	lb.	.45	.55
Red Lead			
Eagle-Picher	lb.	—	.18
No. 2 RM (dlvd.)	lb.	—	.17
Sodium Laurate, 75%	lb.	.64	.74
Sodium Oleate, 75%	lb.	.45	.55
Paste (dms.)	lb.	—	.20
Sodium Stearate, 75%	lb.	.45	.55
USP Grade (drums)	lb.	—	.37
Stearic Acid, Single Pressed			
Emersol 110 (dlvd.)	lb.	.12¼	.14
Groco 53	lb.	.12¼	.14
Neo-Fat 18-53	lb.	.13	.13¾
Standard Pearlstearic (dlvd.)	lb.	.12¼	.14
Wochem 730	lb.	.10½	.12
Stearex B (dlvd.)	lb.	.15½	.16¼
Stearic Acid, Double Pressed			
Choice Pearlstearic (dlvd.)	lb.	.12¾	.14½
Emersol 120 (dlvd.)	lb.	.12¾	.14½
Groco 54	lb.	.12¾	.14½
Neo-Fat 18-54	lb.	.13½	.14½
Wochem 731	lb.	.12¼	.14
Stearic Acid, Other			
Extra Pearlstearic (dlvd.)	lb.	.15	.16¾
Neo-Fat 1-58	lb.	.1190	.1315
1-60	lb.	.1400	.1525
1-65	lb.	.1450	.1575
Wochem 732	lb.	.14½	.16¼
White Lead Basic Carbonate	lb.	.17½	.18½
White Lead Basic Sulfate	lb.	.14¾	.15¾
Zinc Laurate			
Laurex	lb.	.33	.34
Zinc Stearate	lb.	.39	.42
Aquazinc	lb.	.20	.35

Unclassified Activators

Actifat (dms.)	lb.	—	.18
Actogen	lb.	—	.62
Aktone	lb.	.22	.23
Barak	lb.	—	.62
Curade	lb.	.57	.59
D-B-A	lb.	—	1.95
Dibutylamine (dlvd.)	lb.	.55	.56
MODX	tons	.32½	.34½
Ridacto (drums)	lb.	.25	.26
Snodotte (dlvd.)	lb.	.16½	.18¼
Vulklor	lb.	.75	.85

ANTI-COAGULANTS

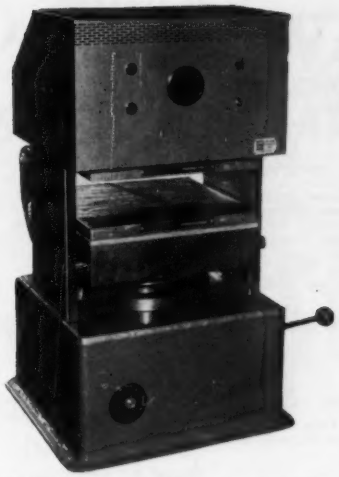
Anhydrous Ammonia (l.c.l.)	lb.	.17	.21
Aqua Ammonia (dms.)	lb.	.031	.035
M.B.M. (l.c.l.)	lb.	—	.35

ANTI-FOAMING AGENTS

Aero Anti Foam H	lb.	—	.20
Regular	lb.	—	.12
D.C. Antifoam A	lb.	5.45	6.65
Antifoam A Emulsion	lb.	2.05	4.00
Antifoam AF Emulsion	lb.	2.05	2.85
Defoama W-1701	lb.	—	.12½
Defoamer A-25	lb.	—	3.00
Defoamer 630	lb.	—	.12½
Deltyl Prime	lb.	.70	.80
Emcol 1M	lb.	—	.60
Kessco X-3 (dms.)	lb.	—	.35½
Nopco 1407	lb.	.20	.20½
1497-V	lb.	.13¾	.14¼
1907-B	lb.	.18¾	.19¼
JMK	lb.	.48½	.49
RS-968	lb.	.38	.38½
SS-24 Silicone Anti-Foam	lb.	5.80	6.90
66	lb.	5.70	6.20
Terpinol Prime No. 1	lb.	.35	.50

ANTIOXIDANTS

Agebest 1293-22A	lb.	1.90	2.00
Agerite Alba	lb.	2.35	2.45
Gel	lb.	.64	.66
Hipar	lb.	.98	1.00
H. P.	lb.	.72	.74



THE

P·H·I

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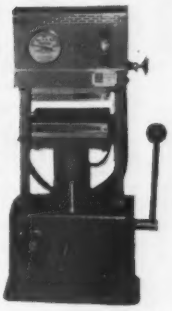
a new

"JUMBO"

model



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20-ton model

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A superior quality *HARD* rubber makers' clay we are mining and refining near Aiken, South Carolina. Available in compressed 50-lb. papers, palletized if desired. Exhaustive tests show this clay to have

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- **ph - 5.1**
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Oldest and Largest Manufacturers of "Factice" Brand Vulcanized Oil Since 1900

(Reg. U.S. Pat. Off.)

THE STAMFORD RUBBER SUPPLY COMPANY

Stamford, Conn.

ANTIOXIDANTS (Cont'd)

Agerite Powder	lb.	.52	.54
Resin	lb.	.75	.77
Resin D	lb.	.52	.54
Spar	lb.	.52	.54
Stalite	lb.	.52	.54
Stalite S	lb.	.52	.54
White	lb.	1.45	1.55
Akroflex C	lb.	.77	.79
CD	lb.	.72	.74
Aminox	lb.	.52	.54
Antioxidant 2246	lb.	1.65	1.68
Antox	lb.	.52	.54
Aranox	lb.	—	3.25
Benzoquinone	lb.	1.50	1.75
Betanox Special	lb.	.80	.82
B-L-E	lb.	.52	.54
B-X-A	lb.	.52	.54
Deenax	lb.	.95	1.05
Di-tert-Butyl-para-Cresol	lb.	.91	.95
Eugenol C-95%	lb.	2.30	2.50
Flectol H	lb.	.52	.59
Flexamine	lb.	.72	.74
Neozone A	lb.	.56	.58
C	lb.	—	.80
D	lb.	.52	.54
Octamine	lb.	.52	.54
Oxidex	lb.	—	3.60
PDA-10	lb.	.39	.41
Permalux	lb.	—	2.17
Polygard	lb.	.52	.54
Santoflex AW	lb.	.78	.85
B	lb.	.52	.59
BX	lb.	.63	.70
35	lb.	.72	.79
Santovar-A	lb.	1.50	1.57
Santowhite Crystals	lb.	1.60	1.67
Santowhite L	lb.	.52	.59
MK	lb.	1.29	1.36
Santowhite Powder	lb.	1.60	1.67
Sequestrene AA	lb.	—	.97½
NA2	lb.	—	.79½
NA3	lb.	—	.77½
Stabilite	lb.	.55	.57
Alba	lb.	.72	.77
L	lb.	.60	.62
White	lb.	.53	.55
White Powder	lb.	.41	.43
Stabilizer No. 1	lb.	1.55	1.80
Stabilizer No. 9-A	lb.	.80	1.05
Styphen I	lb.	.51	.55
Sunolite	lb.	.21	.23
Tannic Acid, Tech.	lb.	.46	.48
Thermoflex A	lb.	.98	1.00
V-G-B	lb.	.70	.72
Wing-Stay S	lb.	.51	.52

ANTI-SCORCHING AGENTS

Armeen HT	lb.	.31	.33
Benzoic Acid—Tech.	lb.	—	.43
Good-rite Vultrol	lb.	.62	.64
Harcopol 1183	lb.	.70	.74
Sodium Acetate 60-62% Crystals	lb.	.08	.08½

ANTISEPTICS AND GERMICIDES

Arquad S	lb.	.24	.26
Formaldehyde (dms.)	lb.	.066	.071
G-4 (bbls.)	lb.	1.04	1.19
G-11	lb.	2.20	2.30
Nuodex 100 S.S. (dlvd.)	lb.	—	1.10
Nuodex 100 W.D. (dlvd.)	lb.	—	1.25
Nuodex Zinc 8% (dms.) (dlvd.)	lb.	.24	.28
Ortho Cresol (26°-27°)	lb.	—	.201
Preventol GD	lb.	—	1.04
I	lb.	—	.80
Retarder D	lb.	.42	.50
Soligen Drier—Copper 8% (dms.)	lb.	.20¼	.21½
Zinc 8% (dms.)	lb.	.22¼	.23½
Vancide	lb.	—	.80

ANTI-WEBBING AGENTS (for Latex)

DC 7 Compound	lb.	5.13	6.50
Webnix 34	lb.	1.50	2.25

AROMATICS (DEODORANTS)

Airkem 115	gal.	—	6.50
122	gal.	—	6.50
186	gal.	—	6.50
Alamask AA	lb.	—	3.00
AF	lb.	—	2.50
AO	lb.	—	1.50
AR	lb.	—	.50
BG	lb.	—	1.15
BGM	lb.	—	.60
CY	lb.	—	2.40
DJ	lb.	—	3.35
DL	lb.	—	1.95
H	lb.	—	5.50
LD	lb.	—	.75
ND	lb.	—	2.75
O	lb.	—	6.50
OS	lb.	—	5.25
Bouquet 149	lb.	—	3.00
Coumarin	lb.	2.95	3.00
Curodex 19	lb.	4.75	4.90
188	lb.	5.75	5.90
198	lb.	6.75	6.90
Deodorant 65	lb.	—	1.85

AROMATICS (Cont'd)

Deodorant L-37	lb.	2.00	2.40
L-44	lb.	2.50	2.90
N.L.T.X.	lb.	1.85	2.15
Deodorant Oil GD 3427	lb.	1.70	2.00
GD 6422	lb.	2.00	2.50
GD 6423	lb.	1.60	1.90
GD 6575	lb.	2.40	2.90
GD 31063	lb.	2.25	2.75
Latex Perfume 5	lb.	—	3.25
6	lb.	—	7.50
9	lb.	—	.65
Naugaromes (dms.)	lb.	.60	3.00
Neutroleum Delta	lb.	—	2.60
Gamma	lb.	—	3.60
Parador A	lb.	2.00	2.50
C	lb.	2.75	3.25
E	lb.	.25	.55
GD 5280	lb.	2.00	2.50
GD 5348	lb.	1.90	3.25
Perfume Oil Bouquet			
Vanilla M	lb.	2.40	2.75
Rodo No. 0	lb.	4.00	4.50
No. 10	lb.	5.00	5.50
Rubbarome (dms.)	lb.	.60	3.80
Rubber Perfume 12	lb.	—	2.85
Russian Leather 7	lb.	—	4.35
Vanillin	lb.	3.00	3.25

BLOWING AGENTS

Ammonium Bicarbonate	cwt.	—	8.00
Blowing Agent CP-975	lb.	.32	.35
Celogen	lb.	—	1.95
AZ	lb.	—	1.95
Sodium Bicarbonate, U.S.P. (c.l., bags)	cwt.	—	2.30
Sponge Paste	lb.	—	.20
Unicel	lb.	—	.90
ND	lb.	—	.76
S	lb.	—	.20
Urea	lb.	.04¼	.04¾

BONDING AGENTS

Braze	gal.	6.00	9.00
Cover Cement	gal.	2.50	4.00
Durez 12987	lb.	—	.54
Kalabond	gal.	6.50	7.75
MDI (dms.)	lb.	3.45	3.75
50 (dms.)	lb.	1.85	2.15
Penacolite B1A	lb.	—	.95
R-2710	lb.	—	.95
Pliobond 20	gal.	2.91	4.23
30	gal.	3.65	4.97
Rex Compounds	gal.	1.30	2.85
TDI (dms.)	lb.	2.00	2.30
Thixons	gal.	3.30	9.00
Ty-Ply Q (BN & S)	gal.	6.75	8.00
Tygobond 30	gal.	5.50	7.45

COAGULANTS

Acetic Acid—56% (bbls.)	cwt.	9.00	11.00
Glacial 99½% (dms.)	lb.	.12	.13
Calcium Nitrate, Tech. Crystals	lb.	.07	.11½
Hydroxyacetic Acid—70% (dms.)	lb.	—	.084
Zinc Nitrate, Tech.	lb.	—	.22½

COLORING AGENTS

Black

Aquablak B	lb.	.09¼	.09¾
M	lb.	.08½	.09
R	lb.	.10¾	.11¼
S	lb.	.11½	.12
Black Shield 4-35 (dms.)	lb.	—	.09
Carbon Black See *Reinforcing Agents*			
Lampblack No. 10	lb.	.06	.09
Mapico Black Iron Oxide (50 lb. bags)	lb.	.12¾	.13
Pure Black Iron Oxide	cwt.	12.75	13.00

Blue

Cooke M.B. Blue	lb.	2.45	2.85
Milori Blue	lb.	—	.48
Monastral Rubber Blue CPL	lb.	—	1.77
PCD, Dispersed	lb.	—	2.20
Peacoline Blue	lb.	—	3.85
Ramapo Blue	lb.	—	3.00
Rubber Blue GD (Disp.)	lb.	—	4.55
Rubber Blue X-1999	lb.	—	1.70
Syntheline Blue	lb.	—	3.85
Stan-Tone MBS	lb.	1.55	4.55
GPE	lb.	—	2.50
PC	lb.	—	2.40
PDS	lb.	—	2.00
PVC	lb.	—	3.25
Ultramarine	lb.	.14	.30
Vansul Blue M.B.	lb.	.90	2.60

Brown

Brown Iron Oxide	lb.	.13¾	.14
Mapico Brown (50 lb. bags)	lb.	.13¾	.14
Stan-Tone GPE	lb.	—	3.00
Vansul Brown M.B. (Organic)	lb.	—	2.10

COLORING AGENTS (Cont'd)

Green

Cooke M.B. Green	lb.	1.45	3.20
Filo Green	lb.	—	.32
Green Chromium Oxide, Pure	lb.	—	.39¾
Green Chromium Oxide, Pure Hydrated	lb.	—	1.10
Monastral Rubber Green GSD (Dispersed)	lb.	—	2.80
GSL	lb.	—	1.97
Permansa Green CP-594	lb.	—	1.35
Pigment Green B	lb.	—	1.35
GL-652D	lb.	.80	.90
Ramapo Green	lb.	—	3.50
Rubber Green FD (disp.)	lb.	—	2.05
Rubber Green X-1292	lb.	—	1.30
Stan-Tone MBS	lb.	1.75	3.60
GPE	lb.	—	3.00
PC	lb.	—	3.00
PDS	lb.	1.90	2.20
PVC	lb.	—	3.60
Vansul Green M.B.	lb.	1.00	3.05

Maroon

Stan-Tone MBS	lb.	—	3.50
Vansul Maroon M.B.	lb.	—	3.25

Orange

Molybdate Orange	lb.	—	.44
Rubber Orange OD (Disp.)	lb.	—	2.75
Rubber Orange X-2065	lb.	—	3.00
Stan-Tone GPE	lb.	—	1.20
PC	lb.	—	1.05
PDS	lb.	—	1.20
PVC	lb.	—	2.25
Vansul Orange M.B.	lb.	2.00	2.50

Red

Antimony Trisulfide	lb.	.72	.78
R. M. P. Sulfur Free	lb.	—	.78
R. M. P. No. 3	lb.	—	.72
Cadmium Red	lb.	.95	1.25
Cadmolith Red (bbls.)	lb.	1.75	2.00
Cooke M.B. Red	lb.	.95	3.15
Graphic Red (dlvd.)	lb.	—	.79
Indian Red, American, Pure	lb.	.12¾	.13
Doxco (English)	lb.	.11½	.11¾
Kroma Reds	lb.	.16¼	.21¼
Mapico Reds (50 lb. bags)	lb.	.12¾	.13
Oximony Iron Oxide	lb.	—	.09
Recco Red Oxide	lb.	.12	.13
Red Iron Oxide, Light	lb.	.13	.13½
Rubber Red PBD (disp.)	lb.	—	1.75
2BD, Dispersed	lb.	—	1.80
2BL	lb.	—	1.47
PBL	lb.	—	1.65
Rubanox Red CP-762 (dlvd.)	lb.	—	1.40
Rubber Red CP-339 (dlvd.)	lb.	—	1.10
Rubber Red X-1148	lb.	—	.79
Solfast Red	lb.	1.50	1.95
Stan-Tone MBS	lb.	1.20	4.00
GPE	lb.	1.65	2.00
PC	lb.	1.45	2.40
PDS	lb.	1.40	1.55
PVC	lb.	—	2.00
Sun Burnt Red	lb.	.11½	.11¾
Vansul Red M.B.	lb.	1.20	3.20
Watchung Red	lb.	1.63	1.95

Tan

Mapico Tan (50 lb. bags)	lb.	.20¼	.20½

White—Lithopone

Albalith	lb.	.0750	.0850
Eagle-Picher	lb.	.0750	.0825
Permolith	lb.	.0750	.0825
Sunolith	lb.	.0750	.0825

White—Titanium Pigments

Ti-Cal	lb.	.08⅜	.09⅛
R-25, R-22, R-27, R-30	lb.	.08⅜	.08⅞
R-60	lb.	.08⅜	.09⅛
Ti-Pure	lb.	.22½	.25½
Anatase grades	lb.	.22½	.23½
Rutile grades	lb.	.24½	.25½
Titanox A—all grades (dlvd.)	lb.	.22½	.23½
C-50 (dlvd.)	lb.	.12⅞	.13⅜
RA (dlvd.)	lb.	.24½	.25½
RA-10 (dlvd.)	lb.	.24½	.25½
RA-NC (dlvd.)	lb.	.24½	.25½
RC (dlvd.)	lb.	.08⅜	.09⅛
RC-HT (dlvd.)	lb.	.08⅜	.08⅞
Unitane O-220	lb.	.19½	.20½
OR-250	lb.	.21½	.22½
Zopaque	lb.	.22½	.23½
R	lb.	.24½	.25½

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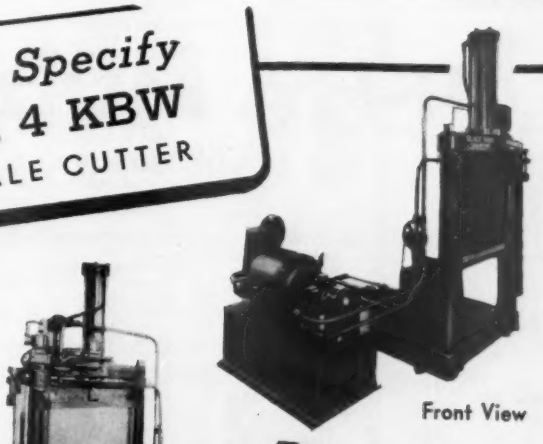

Front View

Rear View: shows manually operated stock feeding device as well as operating controls.

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175 Osborne Street Bridgeport 5, Conn. N. Y. Office, 261 Broadway

COLORING AGENTS (Cont'd)

White—Zinc Oxide (American Process)

AZO-ZZZ 11 (and 22, 33, 44, 55)	lb.	.1350	.1450
Eagle Picher AAA	lb.	.1350	.1450
Horse Head Special	lb.	.1350	.1450
XX	lb.	.1350	.1450
Protox 166	lb.	.1350	.1450
167	lb.	.1350	.1450
St. Joe Black Label	lb.	.1350	.1450
Green Label	lb.	.1350	.1450
Red Label	lb.	.1350	.1450

White—Zinc Oxide (Dispersed)

Dispersed Zinc Oxide	lb.	——	.13

White—Zinc Oxide (French Process)

Florence Green Seal	lb.	.1525	.1625
Red Seal	lb.	.1475	.1575
White Seal	lb.	.1575	.1675
Kadox 25	lb.	.1575	.1675
Kadox 15, 17 and 72	lb.	.1450	.1450
Protox 168	lb.	.1450	.1450
169	lb.	.1450	.1450
U.S.P. (cartons)	lb.	.1675	.1775

White—Zinc Sulfide

Cryptone ZS	lb.	.2530	.2630

Yellow

Benzidine Yellow	lb.	2.50	3.50
Cadmolith Yellow (bbls.)	lb.	——	1.15
Chrome Yellow	lb.	——	.31
Cooke M.B. Yellow 405	lb.	——	1.70
Iron Oxide, Pure	lb.	.10½	.10¾
Mapico Yellow (50 lb. bags)	lb.	.10½	.10¾
Rubber Yellow GD (disp.)	lb.	——	2.15
GL	lb.	——	1.80
Rubber Yellow X-1940	lb.	——	2.15
Stan-Tone MBS	lb.	1.30	4.50
GPE	lb.	——	4.50
PC	lb.	.85	4.50
PDS	lb.	1.25	1.75
PVC	lb.	——	1.60
Toluidine Yellow YL-660 D	lb.	1.15	1.20
Oximony Iron Oxide	lb.	——	.06¾
Vansul Yellow M.B.	lb.	.95	1.95
Zinc Yellow	lb.	.25	.30

DISPERSING AGENTS

Anchoid*	lb.	.24	.25
Armeen 18	lb.	.38	.40
Blancol	lb.	——	.15¾
Darvan No. 1 (and No. 2)	lb.	.22	.30
Daxad 11 (21, 23)	lb.	.08	.30
Diethanalomine (dms., dlvd.)	lb.	.27½	.30¼
Dispersaid	lb.	1.25	1.35
Emcol K-8300 (dms.)	lb.	.19	.20
Emulphor ON-870	lb.	——	.61
Furala	lb.	.06½	.07¼
Halloid	lb.	.04½	.05½
Igepal CO-630	lb.	——	.36
Igepon T-73	lb.	——	.29½
Leonil SA	lb.	——	.55
Lomar PW	lb.	——	.18
Marasperse C	lb.	.06½	.06¾
CB	lb.	.12¼	.13¼
N	lb.	.09½	.10½
Monoethanalomine (dms., dlvd.)	lb.	.28	.30¾
Nekal BA-75	lb.	——	.40
BX-76	lb.	——	.64
Nopco 1187-X	lb.	.15	.16
Rubbex	lb.	.267	.285
Stablex B	lb.	.50	.95
Stan-Chem BQC	lb.	.12¼	.17¾
1067	lb.	——	.13½
1471	lb.	.1687	.2187
2251	lb.	.12¼	.17¾
Trenamine D-25	lb.	.32½	.36
Triethanolamine (drums) (dlvd.)	lb.	.24½	.27¾
Yelkin TT	lb.	.13	.17
Zinsper	lb.	——	.15

EXTENDERS

Advagum 1098	lb.	——	.64
Arcco 1071-13B	lb.	.14½	.15½
1073-18B	lb.	.13½	.14½
1294-36B	lb.	.11½	.12½
Bunaweld Polymer No. 780	lb.	——	.22
No. 5514	lb.	——	.35
Car-Bel-Ex-A and B	lb.	——	.14
Extender 600	lb.	——	.1765
Millex	lb.	——	.07
W	lb.	——	.07
Nopco 2271	lb.	.15½	.16½
Polyco 418	lb.	.17	.18
PR-162 Latex Extender	gal.	——	1.55
Synprolac	lb.	.16	.23
Synprowax	lb.	——	.23
Vistanex	lb.	——	.45

FILLERS (Inert and Reinforcing)

Abrasives			
Carbonite	lb.	.20	1.33
Lionite	lb.	.14½	1.25
Pumice	lb.	.03	.05
Aluminum Hydrate	lb.	.07	.10
Aluminum Silicate			
Aluminum Flake	ton	23.50	30.00
Marter White	ton	18.50	30.00
Barium Carbonate (l.c.l.)	ton	95.50	100.00
Barytes			
No. 1 Floated, White	ton	41.35	60.10
No. 2 Floated, Unbleached	ton	39.35	58.10
No. 22 Barytes (c.l.)	ton	——	25.00
No. 3805 Barytes	ton	21.25	26.75
Foam A	ton	——	41.35
XIOR	ton	75.00	80.00
Bentonite (c.l.)	ton	——	13.50
Argosite Clay (c.l.)	ton	——	12.50
Bennett Clay (c.l.)	ton	——	32.50
SPV Volclay (c.l.)	ton	——	12.50
White Hi-Gel	ton	——	65.90
Blanc Fixe	ton	72.50	120.00
Calcium Carbonate			
Atomite (c.l.)	ton	——	30.00
B.I. White No. 1 (c.l.)	ton	——	8.00
B.I. White No. 2 (c.l.)	ton	——	7.50
B.I. White No. 390	ton	——	6.25
Blue Star XX	ton	——	15.50
Calcene NC	ton	72.50	92.50
TM	ton	75.00	95.00
Calwhite	ton	——	17.00
Camel-Carb	ton	——	10.00
Camel-Tex	ton	——	18.00
Camel-Wite	ton	——	30.00
Duramite	ton	——	15.00
Gamaco	ton	——	30.00
Kalite	ton	50.00	65.00
Keystone White	ton	——	16.00
Laminar	ton	——	30.00
Lesamite (c.l.)	ton	——	27.50
Lorite	ton	30.00	35.00
Millical	ton	35.00	50.00
Multifex	ton	140.00	155.00
MM	ton	110.00	125.00
Non-Fer-Al	ton	30.00	45.00
Purecal M	ton	56.75	80.75
SC	ton	110.00	125.00
T	ton	110.00	125.00
U	ton	120.00	135.00
Rambo No. 1	ton	——	8.50
Sierracal	ton	15.00	18.50
Snowflake	ton	17.00	18.00
Super Multifex	ton	160.00	175.00
Surfex	ton	35.00	50.00
Suspenso	ton	33.00	48.00
Witcarb Reg.	ton	56.75	80.75
P	ton	110.00	125.00
R	ton	120.00	135.00
RC	ton	110.00	125.00
York White	ton	——	9.50
Calcium Silicate			
Silene EF	ton	120.00	140.00
Calcium Sulfate, Anhydrous			
Snow White Filler	ton	——	20.50
Calcium Sulfate, Hydrous			
Terra Alba No. 1	ton	12.00	14.40
Chalk Whiting (l.c.l.)	lb.	.0150	.0175
Recco Paris Whiting	ton	——	33.00
OMYA Whiting	ton	——	30.00
Clay			
Aiken Clay	ton	——	14.00
Alsilite (c.l.)	ton	20.00	45.00
Alsite (c.l.)	ton	——	14.00
Aluminum Flake	ton	23.50	30.00
Buca (c.l.)	ton	——	45.00
Burgess No. 20	ton	——	35.00
No. 30	ton	——	37.00
Burgess Iceberg	ton	——	50.00
Catalpo (c.l.)	ton	——	35.00
Champion	ton	——	14.00
C.S.D. (c.l.)	ton	——	13.50
Crown	ton	——	14.00
Dixie (c.l.)	ton	——	14.00
Franklin Clay (c.l.)	ton	——	13.50
Harwick Clays	ton	18.50	57.00
Hi-White R	ton	——	13.50
Kaolloid Clay (c.l.)	ton	——	10.50
LGB	ton	——	17.00
LGP	ton	——	19.00
McNamee (c.l.)	ton	——	13.50
Paragon	ton	——	13.50
Pigment 5	ton	23.50	26.50
Pigment 33	ton	——	37.00
Recco (c.l.)	ton	——	14.00
Sewanee Clay	ton	——	12.50
Snobrite	ton	——	12.50
Suprex	ton	——	14.00
Whitetex (c.l.)	ton	——	50.00
Windsor Clay (c.l.)	ton	——	14.00
Diatomaceous Earth	ton	30.00	50.00
Kaylorite (c.l.)	ton	——	30.00
Lorite	ton	——	30.00
Flock			
Cotton, white and colored	lb.	.11	.28
Filfloc F 40-9000	lb.	——	.13
Filfloc F 6000	lb.	——	.36
Polycel	ton	110.00	210.00
Rayon, bleached or dyed	lb.	.82	1.25
Rayon, grey	lb.	——	.18
Rayon, pink	lb.	——	.18
Solka-Floc (l.c.l.)	lb.	.07	.16
Glue, Bone (dlvd.)	lb.	.18	.20½
Leather, Shredded	lb.	.05	.17
Lignin	lb.	.06	.08
Polyfon	lb.	.08	.09

FILLERS (Cont'd)

Limestone, Pulverized	ton	3.00	4.75
Asbestol Superfine	ton	——	30.00
Georgia Marble No. 10	ton	——	10.00
Industrial Filler No. 100	ton	——	5.75
Micro Velva A	ton	49.00	51.00
Micro Velva L	ton	57.00	59.00
Magnesium Carbonate	lb.	.0950	.1050
K & M Clearcarb	lb.	.1225	.1275
Magnesium Oxide	lb.	.05	.06
Magnesium Silicate (see Talc)			
Mica	lb.	.01¼	.07¾
Concord	lb.	.07½	.08¾
Micro-Mica	lb.	.07½	.08¼
Mineralite (c.l.)	ton	30.00	85.00
Silversheen	lb.	.07½	.08¼
Triple A Mica (c.l.)	ton	——	25.00
Vermiculite	lb.	——	.11
Wet Ground Biotite Mica	lb.	.06	.06¾
Wet Ground Mica No. 160	lb.	.07½	.08¼
Pyrophyllite			
No. 261	ton	——	11.50
Pyrax A (c.l.)	ton	——	13.50
WA (c.l.)	ton	——	16.00
Sawdust, Graded	ton	14.00	35.00
Silica	ton	16.00	27.00
Blue Star	ton	——	20.60
Slate, Powdered (l.c.l.)	ton	15.00	20.00
Lo-Micron Slate Flour	lb.	——	.04½
No. 133 Slate Flour	ton	——	4.55
Sodium Silico Aluminate Zeolex 23	ton	120.00	140.00
Talc (Magnesium Silicate)			
Asbestol Regular	ton	——	25.00
Blue Star	ton	——	23.00
French	ton	——	59.00
L. S. Silver	ton	29.25	34.25
No. 367	ton	——	13.00
No. 1600	ton	——	70.60
No. 1768	ton	——	13.00
Nytal 200	ton	——	25.00
300	ton	——	36.00
Sierra White	ton	25.75	30.75
Soapstone	ton	——	13.00
Walnut Shell Flour	ton	45.00	115.00
Stan-Shell	ton	80.00	100.00
Whiting, Commercial	ton	——	7.00
Camel-Carb	ton	——	10.00
C-C-O White	ton	——	19.00
Georgia Marble No. 15	ton	——	15.00
No. 16	ton	——	16.00
Keystone (c.l.)	ton	——	16.00
Snowflake (c.l.)	ton	17.00	18.00
Stan-White 325	ton	8.50	11.16
Veroc (c.l.)	ton	——	8.50
Welco (c.l.)	ton	——	8.50
York White R (c.l.)	ton	——	8.50
Wood Flour	ton	25.50	48.00

FINISHING MATERIALS, SURFACE

Beaco Finishes	gal.	2.10	2.35
Black Out	gal.	4.50	8.00
Shellac, Orange Gum	lb.	.39	.49
VanWax	gal.	1.45	1.50

FLAME RETARDANTS

Chlorowax 70	lb.	.18	.19
Halowax	lb.	.35½	.61½
Zinc Borate 3167	lb.	.1920	.2020
Zyrox	lb.	.76½	.86½

LATEX MODIFIERS

OPD-101	lb.	——	.26

LUBRICANTS, MOLD

Akro Gel	lb.	——	.165
Alipal CO-433	lb.	——	.21
CO-436	lb.	——	.27½
Aquadag	lb.	3.50	4.00
Aquarex D	lb.	——	.78
L	lb.	——	.94
ME	lb.	——	.94
MDL	lb.	——	.33
WAQ	lb.	——	.25
Armid O	lb.	.39	.41
Borax, Granular (l.c.l.)	ton	89.00	94.00
Carbowax 4000	lb.	.31	.32
CD Mold Release A	gal.	——	7.00
B	gal.	——	5.00
Colite Concentrate (dms.)	gal.	——	.90
Concentrex	lb.	——	.25
Dag Dispersions No. 197	lb.	1.85	2.90
D.C. 7 Compound	lb.	5.13	6.50
D.C. Emulsion No. 7	lb.	1.59	2.07
No. 8	lb.	1.36	1.80
No. 35	lb.	1.36	2.50
No. 35A	lb.	1.36	2.50
No. 35B	lb.	1.36	2.50
D.C. Mold Release Fluid	lb.	3.39	4.75
Dipex	lb.	.14	.18
Dri-Lube	lb.	——	.22
Glydag G	lb.	1.30	2.45
Hawkeye Flake (dlvd.)	lb.	.13¾	.14¾
Igepal CO-430	lb.	——	.39
CO-530	lb.	——	.36
CO-630	lb.	——	.36
Igepon AP-78	lb.	——	.48
T-51	lb.	——	.13½
Kokobace R	lb.	.18	.18½

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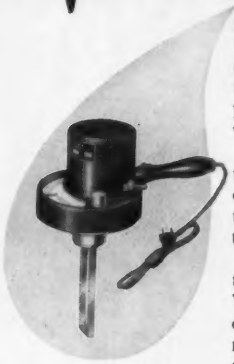
Viscosity *ok* is Key

TO BETTER DIPPING, LEVELING, BRUSHABILITY and SPRAYABILITY



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LUBRICANTS, MOLD (Cont'd)

Linde Silicone L-45	lb.	3.72	4.80
LE-45	lb.	1.46	2.50
Lubrex	**lb.**	**.25**	**.30**
Lubri-Flo	gal.	10.00	12.00
Migralube	**lb.**	—	**.35**
Mold Lubricant No. 72			
Conc.	gal.	2.50	4.00
No. 735	gal.	1.26	2.75
No. 769	gal.	1.20	2.60
No. 880	gal.	1.12	2.50
No. 856	gal.	2.00	4.00
No. 935	gal.	1.75	3.25
No. 980	gal.	1.65	3.15
Moldeze No. 3	gal.	5.00	6.00
Mold-Brite	**gal.**	—	**1.50**
Mold-White	**gal.**	—	**2.00**
Monopole Oil MD	lb.	—	.16
Olate Flakes	lb.	.22¼	.23¼
Orvus WA Paste (dms.)	lb.	—	.23
Polyglycol 15-200	lb.	.25	.28¾
E4000	lb.	.31	.37
Prodag	**lb.**	**.28**	**.42**
Purity Flake (dlvd.)	lb.	.17¾	.18¾
Rubber-Flo	gal.	1.25	2.00
Rubber-Glo	**gal.**	—	**.94**
Rusco Mold Paste	lb.	—	.25
Sericite (l.c.l.)	**ton**	**65.00**	**75.00**
SF-92 Silicone Fluid	lb.	3.70	4.22
SM-33 Silicone Emulsion	lb.	1.50	1.68
55	lb.	1.46	2.00
61	lb.	1.46	1.68
Thermalube	**lb.**	—	**.13¾**
Ucon Lubricants	lb.	.26¾	.27¾
Ulco Mold Soap	**lb.**	**.12**	**.23**

LUBRICANTS, RUBBER

Diglycol Stearate Neutral (and SE) (dms.)	lb.	—	.25
Emcol DS-50	lb.	—	.38
RDH-S	lb.	—	.27
Extrud-o-Lube	gal.	—	1.54
G.B. Naphthenic Neutrals	gal.	.11	.18
Ivory Chips	lb.	.18¾	.19¾
Latex-Lube GR (dlvd.)	lb.	.19¼	.20
No. 82-A (450 lb. dms.)	lb.	—	.08½
Propylene Stearate (dms.)	lb.	.68	.78

LUBRICANTS, RUBBER SURFACE

Barium Stearate	lb.	.37	.42
Calcium Stearate	lb.	.35	.40
D.C. 4 Compound	lb.	5.13	6.50
D.C. 200 Fluid	lb.	3.39	4.75
Glycerized Lubricant	gal.	—	1.48
Glydag B	lb.	1.50	2.10
G	lb.	1.30	2.45
Hydro-Zinc	lb.	—	.20
Latex-Lube Pigmented (dlvd.)	lb.	.17¼	.18¼
R-66 (factory)	lb.	—	.16½
Liqui-Lube (dlvd.)	lb.	—	.16¾
N.F. (dlvd.)	lb.	—	.16¾
N.T. (dlvd.)	lb.	—	.16¾
Polyethylene Glycol	lb.	.22	.26
Rexanol	lb.	—	.13
Rubber Free (Concentrate)	gal.	—	1.44
Jel	lb.	.18	.21½
Separex	**lb.**	—	**.25**
Stock-Lube	lb.	—	.19
Slab-Dip	lb.	—	.16
Wet-Zinc	lb.	—	.22¼
Zinc Stearate	lb.	.37	.42
Z.S.D. Dispersion	lb.	—	.20

MOLD CLEANERS

Actusol (dlvd.)	gal.	1.45	1.65
Alkon (dlvd.)	lb.	.16	.16½
Metso Anhydrous	cwt.	4.85	7.10
Metso 99	cwt.	4.50	6.75
Metso 200	cwt.	6.00	6.75
Metso Granular	cwt.	4.00	6.25
Orvus Extra Granules	lb.	.22½	.23½
Rubber-Sol	gal.	2.97	3.97
Sprex A.C. (dlvd.)	lb.	.17¾	.18¾

PEPTIZING AGENTS

Peptizer P-12	lb.	.95	1.25
Pepton 22 Plasticizer	lb.	.79	.82
RPA 2	lb.	—	.78
3	lb.	—	.47
3 Conc.	lb.	—	.97
5	lb.	—	.59
6	lb.	—	1.58

PLASTICIZERS & SOFTENERS

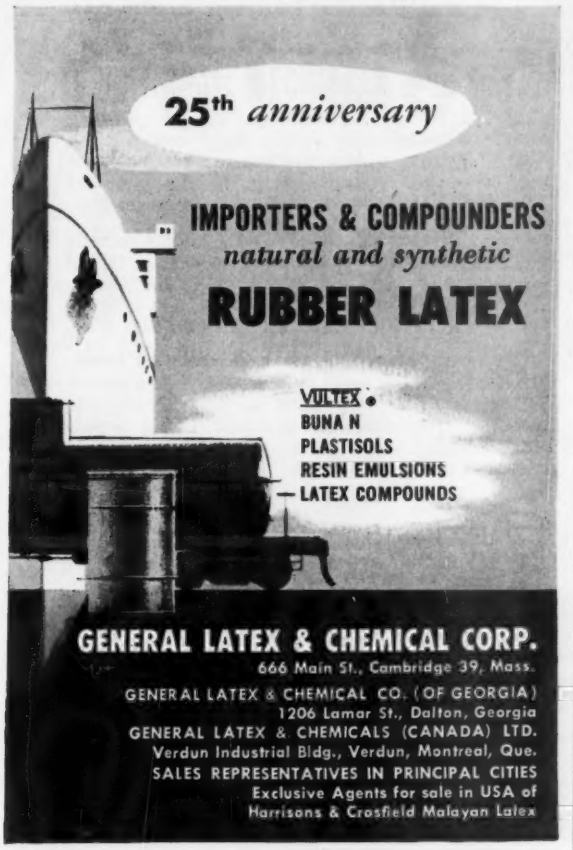
AA (dms.)	lb.	—	.19½
Acto 500	lb.	—	.09
Adipol BCA (dms.)	lb.	.47	.47½
2EH	lb.	.44	.47¾
10A	lb.	.44	.47¾
ODY	lb.	.53¾	.54¾
American Pine Tar	lb.	.0410	.0678
Arneel	lb.	.27	.39
Arolene 1980 (c.l.)	lb.	—	.10
Aromatic Plasticizer 10 (and 25) (dms.)	lb.	.06	.06½
Aromatic Tar	gal.	.0573	.1973

PLASTICIZERS & SOFTENERS (Cont'd)

Bardol	lb.	.02¾	.03¾
B	lb.	.06¼	.06½
Bayol D	gal.	—	**.382**
F	gal.	—	.52
Beeswax, Bleached	lb.	.70	.75
Yellow Refined	lb.	.57	.62
Bondogen	lb.	.55	.60
B.R.C. No. 20	lb.	.0150	.0175
B.R.H. 2	lb.	.0213	.0351
BRS 700	lb.	.02	.0285
B.R.T. 3	lb.	.0180	.0265
4	lb.	.0250	.0260
7	lb.	.03	.031
B.R.V.	lb.	.0475	.0565
Bunarex Resins	lb.	.06½	.07½
Bunatak AH	**lb.**	**.08**	**.09**
U	lb.	—	.17½
No 90	lb.	—	.09
No. 210	lb.	—	.14
Burgundy Pitch	lb.	.0843	**.0888**
Butac	lb.	.11¾	.12¾
Butoxyethyl Diglycol Carbonate (dms.)	lb.	.40	.41
Butyl Benzyl Sebacate	lb.	.87	.89
Butyl Carbitol Perlargonate (dms.)	lb.	—	.64½
Butyl Cellosolve Perlargonate (dms.)	lb.	—	.68
Butyl Palmitate	lb.	—	.26½
Butyl Stearate (dms.)	lb.	.23	.25
BWH-1	lb.	.16	.17
Cabflex DDA	lb.	.45½	.46½
DDP	lb.	.34	.35
Di-BA	lb.	.45¼	.46¼
Di-OA	lb.	.45½	.46½
Di-OP	lb.	.34	.35
Di-OZ	lb.	.49¾	.50¾
ODA	lb.	.45½	.46½
ODP	lb.	.34	.35
Cabol 100	lb.	.02	.06
Califlux 510, 550	lb.	.02½	.03¾
G.P.	lb.	.0125	.02
R-100	lb.	.04½	.05¼
TT	lb.	.0170	.0245
Candelilla Wax, Prime	lb.	.74	.77
Capryl Benzyl Sebacate	lb.	.89	.91
Carbowax 4000 (dms.)	lb.	.31	.32
Cardolite 615	lb.	.33¾	**.36¾**
816	lb.	25¾	**.28¾**
Carnauba Wax, Crude	lb.	.82	1.00
Refined	lb.	.84	1.00
Yellow	lb.	1.16	1.30
Castorwax	lb.	—	.26½
Celluflex (dms.)	lb.	.35	.40
112 (t.c., dlvd.)	lb.	—	.33
179-A (t.c., dlvd.)	lb.	—	.33
179-C (t.c., dlvd.)	lb.	—	.33
179-EG (t.c., dlvd.)	lb.	—	.33
DBP (t.c., dlvd.)	lb.	—	.33
DOP (t.c., dlvd.)	lb.	—	.34
TPP (dms. eqld.)	lb.	—	.39
Ceresine Wax	lb.	.14	.26
Chlorowax 40	lb.	.14½	.15½
CTLA Polymer	gal.	.20	.36
Cumar Resins	lb.	.06½	.17
Darex DBP	lb.	.33	.35¾
DOP	lb.	.34	.37
DIOP	lb.	.34	.37
D.B.M.	lb.	.32	.34¾
Degras, Common	lb.	—	.14
Diallyl Phthalate (dms.)	lb.	.47	.52¼
Dibenzyl Sebacate	lb.	.88	.89½
Dibutoxethyl Sebacate	lb.	—	.5634
Dibutyl Phthalate	lb.	.30	.33
Dibutyl Sebacate	lb.	.67½	.74
Dicapryl Adipate	lb.	.43	.45
Dicapryl Phthalate	lb.	.30	.35¾
Dicapryl Sebacate	lb.	.64	.68½
Di-Carbitol Phthalate (dms.)	lb.	.42	.42½
Dicyclohexyl Phthalate	lb.	.59	.60
Diethyl Phthalate (t.c.)	lb.	.25	.27¾
Di-2-ethylhexyl Phthalate (t.c.)	lb.	—	.34
Dihexyl Adipate	lb.	.42	.44
Dihexyl Phthalate	lb.	.33	.35
Dihexyl Sebacate	lb.	.62	.70
Diisobutyl Azedate	lb.	—	.47¼
Di-iso-octyl Adipate (dms.)	lb.	.42½	.47¾
Di-iso-octyl Phthalate (t.c.)	lb.	.30½	.37
Dimethyl Phthalate (t.c.)	lb.	.27½	.30¼
Dimethyl Sebacate	lb.	1.25	1.27
Dinopol	lb.	.37	.38
Dioctyl Phthalate (dms.)	lb.	.30	.37
Dioctyl Sebacate (dms.)	lb.	.61	.63½
D.I.O.P. (dms.)	lb.	.36	.37
Dipolymer Oil	gal.	.33	.48
Dispersing Oil No. 10	lb.	.06	.06¼
Dutrex 6	lb.	—	.02
15E	gal.	—	.10
Elastex 10-P	lb.	.34	.37
50-B	lb.	.27	.30
DCHP	lb.	.59	.60
Emulphor EL-719	lb.	—	.62
Estac	lb.	—	.16
Ethox (dms.)	lb.	.45	.45½
Flexol B-400	lb.	.27	.28
DOP	lb.	.36	.37
TOF	lb.	.47¾	.48¾
3GH	lb.	.45½	.46
3GO	lb.	.54½	.55
4GO	lb.	.35½	.36½
Flexricin P-1	lb.	—	.32
P-4	lb.	—	.31
P-4C	lb.	—	.42½
P-6	lb.	—	.37
P-8	lb.	—	.33

PLASTICIZERS & SOFTENERS (Cont'd)

Fortex (dms.)	lb.	.12½	.14½
Galex W-100	lb.	.15½	.19¼
G. B. Light Process Oil	lb.	.025	.0325
Medium Process Oil	lb.	.03½	.04¼
G. B. Naphthenic Neutrals	gal.	.11	.18
Good-Rite GP233	lb.	.44¾	.47¾
GP261	lb.	.34	.37
Harflex 500 (dms.)	lb.	.31½	.33½
Herron-H.T.	gal.	.16	.27
Herron-Plas	lb.	—	.03¾
Herron-Wax	lb.	.05¼	.06
No. 23	lb.	.08¼	.08¾
No. 24	lb.	.07¼	.07¾
HSC No. 13	lb.	.27	.30
Indonex 632½ (633½, 634½, 637½)	gal.	.11	.17
Kapsol	lb.	.34¼	.35¾
Kenflex	lb.	.18	.27
Kesscoflex 101 (dms.)	lb.	—	.39
102 (dms.)	lb.	—	.32½
103 (dms.)	lb.	—	.41½
104 (dms.)	lb.	—	.48
105 (dms.)	lb.	—	.33¾
106 (dms.)	lb.	—	.35½
108 (dms.)	lb.	—	.37
109 (dms.)	lb.	—	.36¾
KP 23 (dms.)	lb.	.31	.32
90 (dms.)	lb.	.47	.48
140 (dms.)	lb.	.48	.48½
201 (dms.)	lb.	.58¾	.59¼
220 (dms.)	lb.	.33	.34
555 (dms.)	lb.	.33¼	.33¾
Kremol 40	gal.	.36	.46
50	gal.	.39	.49
Kronisol (dms.)	lb.	.35	.35½
Kronitex AA dms.)	lb.	.35	.36
I (dms.)	lb.	.35	.36
Lanolin, Tech. Anhydrous	lb.	—	.28
Lead Oleate	lb.	—	.30½
Lindol (dms., t.c.)	lb.	.33	.36
2-Mercaptoethanol (drums)	lb.	1.25	1.50
Methyl Laurate	lb.	.25	.27
Methyl Oleate	**lb.**	—	**.20**
Methyl Stearate (dms.)	lb.	—	.30
Monoplex S-71	lb.	.46½	.47½
Montan Wax, Crude	lb.	.13	.14
Monten Wax	lb.	—	.30½
Morflex	lb.	.32	.69½
MR 2088 (dms.)	lb.	—	.19
Natac	lb.	.11¾	.12¾
Nebony Resins (dms.)	lb.	.04	.04½
Neolene 210 (t.c.)	**lb.**	—	**.16**
212 (t.c.)	lb.	—	.14
220 (t.c.)	lb.	—	.15
Nerium	**lb.**	—	**.09**
Nevillac Resins (dms.)	lb.	.31	.85
Neville Resins (dms.)	lb.	.12	.18
Nevindene Resins (dms.)	lb.	.15	.18
Nevinol (dms.)	lb.	—	.20
Nuba 1 (and 2) (dms.)	lb.	.05¾	.06¼
3X (dms.)	lb.	.07¾	.08¼
15 (and 30) Oil (dms.)	lb.	.36¼	.38
No. 480 Oil Proof Resin	lb.	—	.18
Ohopex Q10 (dms.)	lb.	.34	.35
R9 (dms.)	lb.	.37¼	.37¾
Opalwax	lb.	.37	.38
Ortho-Nitrobiphenyl	lb.	.13	.15
Ozokerite Wax No. 64 White	lb.	.26	.27
Yellow	lb.	.24	.25
Palm Oil	**lb.**	—	**.11**
Paradene Resins (dms.)	lb.	.06½	.07½
Para Flux (dms.)	gal.	.1925	.2025
2016 (dms.)	gal.	.22	.23
Para Lube (l.c.l.)	lb.	.046	.048
Paraplex G-60	lb.	.35	.36
G-62	lb.	.37½	.38½
Parmo	lb.	.06	.13½
Pepton 22 Plasticizer	lb.	.79	.82
PG-16	lb.	.38¼	.40
Picco 10 (and 25)	lb.	—	.13½
60 (and 75)	lb.	—	.13
100	lb.	.13	.13½
Piccocizer 30	lb.	.05½	.07
Piccolastic A (and B, C, D, E)	lb.	.28	.29
FT, FHF and FN	lb.	.1815	.1965
T-135	lb.	.22¾	.23¼
Piccolyte S Resins	lb.	.18½	.20
Piccopale Resins	lb.	.12	.13
Piccoumaron Resins	lb.	.06½	.18
Pigmentar	lb.	.0389	.0678
Pigmentaroil	lb.	.0394	.0678
Plastac M	**lb.**	—	**.09¼**
Plasticizer 2286	lb.	—	**.26¼**
Plasticizer 4141	lb.	.56¾	.66¾
Plasticizer ODN	lb.	.31	.37
Plasticizer SC	lb.	.54¼	.56¾
Plasticizer W-13	**lb.**	**.37**	**.38¾**
Plasticizer XP-3	**lb.**	—	**.50**
Plastoflex 50	lb.	.34½	.35¼
55	lb.	.31¾	.32¾
520	lb.	.37½	.38½
VS	lb.	.38¾	.39¼
Plastogen	lb.	.07¾	.08
Plastolein 9050 (c.l.)	lb.	.56	.59
9055	lb.	.33	.38
9058	lb.	.52	.55
9250	lb.	.27	.30
9715	lb.	.35	.38
Plastone	lb.	.27	.30
Polycin 783	lb.	—	.24½
Polycizer 162	lb.	.34	.37
332	lb.	.44¼	.47¾
ED	lb.	—	.56¾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PLASTICIZERS & SOFTENERS (Cont'd)

Polyco 438	lb.	.32 -	.34
Polymel C-130	lb.	.19½ -	.20½
D	lb.	.23½ -	.24½
6	lb.	.05¾ -	.07¾
Process Oil C-255 (c.l.)	gal.	— -	.22
Propylene Stearate (dms.)	lb.	— -	.32
PT 67 Light Pine Oil (dms.)	gal.	— -	.60
101 Pine Tar Oil (t.c., dms)	gal.	33½ -	.44½
400 Pine Tar (600, 800) (t.c., dms.)	gal.	.35 -	.46
PX-104	lb.	.34 -	.42
PX-108	lb.	.38 -	.46
PX-208	lb.	.41½ -	.49
PX-404	lb.	.60 -	.68
Reogen	lb.	.13¼ -	.13½
465 Resin (dms.)	lb.	.07 -	.07½
Resin 731-C	cwt.	— -	15.00
Resin C	lb.	.0225 -	.0310
Resinex	lb.	.03¼ -	.03¾
L-4	lb.	.02¼ -	.03
Rexflex	lb.	— -	.15
Rosin Oil	gal.	.54 -	1.20
R.S.O. Softening Oil	lb.	.03 -	.05
Rubberol	lb.	— -	.25¾
Rubtar	gal.	— -	.40
Santicizer B-16	lb.	.52 -	.54¾
E-15	lb.	.51 -	.53¾
M-17	lb.	.48 -	.50¾
No. 107	lb.	.38¾ -	.39¼
No. 140	lb.	.33 -	.35¾
No. 141	lb.	.37 -	.39¾
No. 160	lb.	.25 -	.28
Sherolatum	lb.	.03½ -	.06
Softener No. 20	gal.	.09 -	.25
Solarite Resin No. 1	lb.	.16½ -	.22½
Staflex DBES	lb.	.67½ -	.68½
DOS	lb.	.68 -	.69
IXA	lb.	.34 -	.35
KA	lb.	.37¾ -	.38¾
Stanolind Petrolatum	lb.	.053 -	.089
Wax	lb.	.31 -	.33
Sunny South Burgundy Pitch	lb.	.0980 -	.1025
Sunny South Pine Tar	lb.	.0389 -	.0678
Sunny South Rosin Oil	gal.	.58 -	.87½
Superla Wax	lb.	.34½ -	.44
Syncera Wax	lb.	.23 -	.34
Syn Tac (c.l.)	gal.	— -	.33
Synthetic Revertant Oil	lb.	— -	.16
Tar, Refined	gal.	.12 -	.17
K-Tarnel NR (t.c.)	lb.	— -	.0851
Terpene A	gal.	— -	.65
TP-90B	lb.	— -	.59
TP-95	lb.	— -	.65
Transphalt Resins	lb.	.02¼ -	.03¼
Triacetin	lb.	.40 -	.47
Tributyl Phosphate (dms.)	lb.	.52 -	.53
Tricresyl Phosphate (t.c.)	lb.	.33 -	.35
Turgum S	lb.	.10 -	.11
Vanadiset A	lb.	.02½ -	.07
Vistac No. 1	gal.	1.00 -	1.21
P	lb.	.18 -	.18½
Vopcolene 50	lb.	— -	.37
Witcizer 100	lb.	.31 -	.32
200	lb.	.21 -	.26½
201	lb.	.23½ -	.29
300	lb.	.35¾ -	.36¾
312	lb.	.36¾ -	.37¾
412	lb.	.47¾ -	.48¾
Witresin—Granular	ton	41.00 -	43.00
Solid	ton	36.00 -	38.00

PROCESSING AIDS

Castor Oil, Processed (dms.)	lb.	— -	.21½
Refined (dms.)	lb.	— -	.19½
Dutrex 7	lb.	.12 -	.20
ELA	lb.	— -	.82
Emcol MAS	lb.	— -	.44
Kenflex N	lb.	— -	.18
Millrex	lb.	— -	.15
Resin No. 510	lb.	.13½ -	.16½
Zyrox	lb.	.50 -	.79

PROTECTIVE & STABILIZING AGENTS

Acacia	lb.	.12¾ -	.21
Alpha Protein	lb.	.24 -	.28
Ammonium Alginate	lb.	— -	1.02
Aroostocrat	lb.	— -	.07½
Carob Bean Flour	lb	— -	.46
Casein	lb.	.24 -	.31
Emcol K-8300 (dms.)	lb.	.19 -	.20
Ethylene Diamine 68%	lb.	.44 -	.47
Gum Arabic	lb.	— -	.19
Karaya Gum	lb.	— -	.25
Locust Bean Gum	lb.	— -	.31
Prosein	lb.	.0600 -	.0630
Rex Compound No. 2801	lb.	— -	.15
Stablex B	lb.	.50 -	.95
K	lb.	.27 -	.35

RECLAIMING AGENTS

Amalgamator Z-4		— -	.32
Armeen C	lb.	.45 -	.47
Mixed Crude	lb.	.17 -	.23
T	lb.	.29 -	.31
No. 517 H.B. Oil	gal.	.11½ -	.16½
535	gal.	.22 -	.27

RECLAIMING AGENTS (Cont'd)

Burco RA	lb.	.05½ -	.08¼
C-6 Oil (and 28, 32)	gal.	.33 -	.38
C-10 Oil	gal.	.25 -	.30
C-33	gal.	— -	.21½
C-42	gal.	— -	.23
Caustic Soda—Flake 76% (c.l., dms.)	cwt.	— -	4.10
Liquid 50% (t.c.)	cwt.	— -	2.55
Solid 76% (c.l., dms.)	cwt.	— -	3.70
Cresylic Acid (99-100%)	gal.	.90 -	1.23
D-4	gal.	— -	.27
E-5	gal.	— -	.25
Flake Calcium Chloride (77-80%)	ton	— -	27.00
G. B. Reclaiming Oil	gal.	.12 -	.18
CD-10	gal.	.10 -	.16
CD-50-U	gal.	.18 -	.24
Gensol No. 6 (t.c.)	gal.	— -	.40
Heavy Aromatic Naphtha	gal.	— -	.13¼
LX-77 Reclaiming Solvent	gal.	.21 -	.33
LX-572 Reclaiming Oil	gal.	.27 -	.32
LX-777 Reclaiming Oil	gal.	.23 -	.33
Neo-Fat D-242	lb.	.05½ -	.07¾
PRR 1	gal.	.15 -	.35
PT 67 Light Pine Oil (dms.)	gal.	— -	.60
PT101 Pine Tar Oil (t.c., dms.)	gal.	.33½ -	.44½
Q Oil	gal.	— -	.286
Reclaiming Oil 3186 (t.c.)	gal.	.28 -	.38½
Reclaiming Oil 3186-G	gal.	.25 -	.36½
Reclaiming Reagent No. 1431	lb.	.21 -	.25
R.P.A. No. 3	lb.	— -	.47
RR-10	lb.	— -	.36
Soda Ash (c.l., bags)	cwt.	— -	1.65
Solvent 534	gal.	.20½ -	.26½
Solvent Oil 21	gal.	.24 -	.29
C-42	gal.	.23 -	.28
Union Solvent 4060-O	gal.	— -	.184
X-1 Resinous Oil	lb.	.0210 -	.0275

REINFORCING AGENTS—CARBON BLACK

Channel, Hard Processing (HPC) (bags)

Atlantic HPC-98	lb.	.0740 -	.1225
Continental F	lb.	.0740 -	.1225
Croflex	lb.	.0740 -	.1225
Dixiedensed (and S)	lb.	.0740 -	.1225
HX Compact	lb.	.0740 -	.1225
Kosmobile (and S)	lb.	.0740 -	.1225
Micronex HPC	lb.	.0740 -	.1225
Spheron 4	lb.	.0740 -	.1225
Witco No. 6	lb.	.0740 -	.1225

Channel, Medium Processing (MPC) (bags)

Atlantic MPC-95	lb.	.0740 -	.1225
Collocarb	lb.	.0705 -	.1105
Continental A	lb.	.0740 -	.1225
Croflex TH	lb.	.0740 -	.1225
Dixiedensed HM (and S-66)	lb.	.0740 -	.1225
Huber Arrow TX	lb.	.0740 -	.1225
Kosmobile HM (and S-66)	lb.	.0740 -	.1225
Micronex Standard	lb.	.0740 -	.1225
Spheron 6	lb.	.0740 -	.1225
Texas M	lb.	.0740 -	.1225
Witco No. 1	lb.	.0740 -	.1225

Channel, Easy Processing (EPC) (bags)

Atlantic EPC E-42	lb.	.0740 -	.1225
Collocarb	lb.	.0705 -	.1105
Continental AA	lb.	.0740 -	.1225
Croflex 77	lb.	.0740 -	.1225
Dixiedensed 77	lb.	.0740 -	.1225
Kosmobile 77	lb.	.0740 -	.1225
Micronex W-6	lb.	.0740 -	.1225
Spheron 9	lb.	.0740 -	.1225
Texas E	lb.	.0740 -	.1225
Witco No. 12	lb.	.0740 -	.1225
Wyex	lb.	.0740 -	.1225

Channel, Conductive (CC) (bags)

Continental R-40	lb.	.2300 -	.3000
Dixie 5 Dustless	lb.	.1200 -	.1900
Dixie Voltex	lb.	.2300 -	.3000
Kosmink Dustless	lb.	.1200 -	.1900
Kosmos Voltex	lb.	.2300 -	.3000
Spheron C	lb.	.1400 -	.1850
Voltex	lb.	.2300 -	.3000

Conductive Furnace Black (CFB) (bags)

Aromex 115	lb.	.0890 -	.1290
Shawinigan Acetylene Black	lb.	.1700 -	.2600
Vulcan C	lb.	.1050 -	.1500

Furnace, Fast Extruding (FEF) (bags)

Arovel	lb.	.0600 -	.1000
Collocarb	lb.	.0590 -	.0990
Continex	lb.	.0650 -	.1050
Croflex 50	lb.	.0600 -	.1000
Dixie 50	lb.	.0600 -	.1000
Kosmos 50	lb.	.0600 -	.1000
Philblack A	lb.	.0600 -	.1000
Statex M	lb.	.0600 -	.1000
Sterling SO	lb.	.0600 -	.1000

REINFORCING AGENTS—CARBON BLACK (Cont'd)

Furnace, General Purpose (GPF) (bags)

Dixie 35	lb.	.0500 -	.0900
Kosmos 35	lb.	.0500 -	.0900
Sterling V	lb.	.0500 -	.0900
V (Non-Staining)	lb.	.0500 -	.0900

Furnace, High Modulus (HMF) (bags)

Collocarb	lb.	.0470 -	.0870
Continex HMF	lb.	.0550 -	.0950
Croflex 40	lb.	.0550 -	.0950
Dixie 40	lb.	.0550 -	.0950
Kosmos 40	lb.	.0550 -	.0950
Modulex	lb.	.0550 -	.0950
Statex 93	lb.	.0550 -	.0950
930	lb.	.0470 -	.0870
Sterling L	lb.	.0550 -	.0950
LL	lb.	.0550 -	.0950

Furnace, Semi-Reinforcing (SRF) (bags)

Collocarb	lb.	.0480 -	.0880
Continex SRF	lb.	.0450 -	.0850
Croflex 20	lb.	.0450 -	.0850
Dixie 20	lb.	.0450 -	.0850
Essex	lb.	.0450 -	.0850
Furnex	lb.	.0450 -	.0850
Gastex	lb.	.0500 -	.0900
Kosmos 20	lb.	.0450 -	.0850
Pelletex	lb.	.0450 -	.0850
NS	lb.	.0450 -	.0850
Sterling NS	lb.	.0450 -	.0850
Sterling R	lb.	.0500 -	.0900
Sterling S	lb.	.0450 -	.0850

Furnace, Fine (FF) (bags)

Statex B	lb.	.0650 -	.1050
Sterling 99	lb.	.0650 -	.1050

Furnace, High Abrasion (HAF) (bags)

Aromex	lb.	.0790 -	.1190
Collocarb	lb.	.0745 -	.0870
Continex HAF	lb.	.0790 -	.1250
Croflex 60	lb.	.0790 -	.1190
Dixie 60	lb.	.0790 -	.1190
Kosmos 60	lb.	.0790 -	.1190
Philblack O	lb.	.0790 -	.1190
Statex R	lb.	.0790 -	.1250
Vulcan 3	lb.	.0790 -	.1250

Furnace, Super Abrasion (SAF) (bags)

Philblack E	lb.	.1350 -	.1750
Statex 125	lb.	.1050 -	.1500
Vulcan 9	lb.	.1350 -	.1780

Furnace, Super Abrasion, Intermediate (ISAF) (bags)

Aromex 125	lb.	.1050 -	.1450
Dixie 70	lb.	.1100 -	.1550
Kosmos 70	lb.	.1100 -	.1550
Philblack I	lb.	.1050 -	.1450
Vulcan 6	lb.	.1050 -	.1500

Furnace, Super Conductive (SCF) (bags)

Vulcan SC	lb.	.1800 -	.2230

Thermal, Fine (FT) (bags)

P-33 (c.l.)	lb.	— -	.0550
Sterling FT (c.l.)	lb.	— -	.0550

Thermal, Medium (MT) (bags)

Shellblack *	lb.	— -	.0250
Sterling MT (c.l.)	lb.	— -	.0350
MT Non-Staining (c.l.)	lb.	— -	.0450
Thermax (c.l.)	lb.	— -	.0350
Thermax, Stainless (c.l.)	lb.	— -	.0450

REINFORCING AGENTS—SILICA

Cab-o-sil (compressed)	lb.	— -	.81
Hi-Sil	lb.	.10 -	.11½
C	lb.	.11 -	.12½
Santocel	lb.	.62 -	.64

REINFORCING AGENTS—MISCELLANEOUS

Angelo Shellac	lb.	.39 -	.49
Darex Copolymer No. 3	lb.	.47 -	.49
X34	lb.	.42 -	.44
43G	lb.	.42 -	.44
Darex Copolymer Latex No. 3-L (and X34L)	lb.	.36½ -	.39
Durez 12687 (and 12707)	lb	— -	.37
Durez 13355		— -	.29½
Good-Rite Resin 50	lb.	.42 -	.44
Hetro	lb.	.31½ -	.32½
Kralac A	lb.	.43 -	.44

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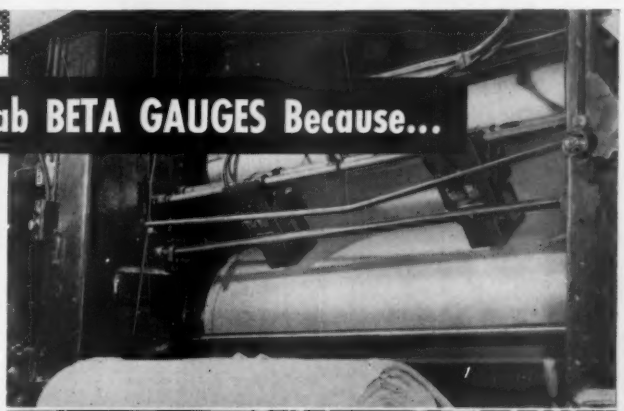

. . . if they hadn't they wouldn't have purchased a total of five gauges over the past several years. The upper picture shows one of their newest installations. Two Tracerlab Backscatter units are controlling the thickness of rubber *immediately* after the nip of the calender, prior to its application to the fabric. For this reason the response of the gauges to any change in the weight of the calendered rubber is *immediate* permitting very close control of the rubber thickness.

When automatic control is desired, the *immediate* response of the gauge to changes in weight permits the use of much simpler and less expensive control equipment with much better control characteristics.

The number of off-weight rolls has decreased by 75% since their gauges were installed, Hood reports. Since off-weight rolls averaged about 70% heavy and 30% light, there has been appreciable material savings and improved quality.

Give us the details of your operation . . . for our recommendations on gauging equipment.

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130 HIGH ST., BOSTON, MASS.

REINFORCING AGENTS—MISC (Cont'd)

Lamphlack	lb.	——	.12
Marbon S and S-1	lb.	.42	.44
8000	lb.	.42	.44
Marmix	lb.	.42	.49
Pliolite Latex 150	lb.	.44	.45
Pliolite Resin-Rubber Master-batches	lb.	.35	.50
Pliolite NR	lb.	.94	.95
Pliolite S3, S6, and S6B	lb.	.43	.44
Plio-Tuf G75C	lb.	.53	.54
G85C	lb.	.53	.54
Polyco 220	lb.	.18¼	.19¼

RETARDERS

Dutch Boy Normasal	lb.	——	.46
ESEN	lb.	.35	.37
Harcopol 1183	lb.	.70	.74
Retarder ASA	lb.	——	.57
Retarder PD	lb.	.35	.37
Retarder W	lb.	——	.45
Retardex	lb.	.47	.50

RUBBER SUBSTITUTES

Mineral Rubber

38	ton	38.00	40.00
Black Diamond	ton	38.00	40.00
Byerlyte	ton	47.00	54.00
Gilsonite, Selects (c.l.)	ton	37.00	38.00
Hard Hydrocarbon (dms.)	ton	46.50	48.50
Herron Flake	ton	——	45.00
Pioneer	ton	35.00	46.00

Vulcanized Vegetable Oils (Factice)

Amberex	lb.	.29	.36
Brown	lb.	.1310	.2200
Neophax	lb.	.1570	.2680
White	lb.	.1480	.2520

Miscellaneous Rubber Substitutes

G.B. Asphaltenes	lb.	.06	.06½
Gilsowax B	lb.	.09	.11
Resin No. 1098 (drums)	lb.	——	.62
No. 1198	lb.	.46¾	.49¾

SOLVENTS

Acetone (dlvd.)	lb.	.10	.11
American Dipentine	gal.	.34½	.70
American Pine Oil	gal.	.86½	1.04
Amsco Lactol Spirits (t.c.)	gal.	——	.19
Naphthol Spirits	gal.	——	.19
Mineral Spirits	gal.	——	.17
Rubber Solvent (t.c.)	gal.	——	.18
Solv A (t.c.)	gal.	——	.27½
Solv A-80 (t.c.)	gal.	——	.32½
Solv B (t.c.)	gal.	——	.31
Solv B-90 (t.c.)	gal.	——	.34
Solv D (t.c.)	gal.	——	.32½
Solv E	gal.	——	.31½
Solv F	gal.	——	.32½
Solv F-80	gal.	——	.35½
Special Naphtholite (t.c.)	gal.	——	.18
Special Textile Spirits	gal.	——	.19
Super Naphtholite	gal.	——	.18
Textile Spirits (t.c.)	gal.	——	.19
Amyl Chlorides, Mixed (l.c.l.) (drums)	lb.	.09¼	.10¼
Benzol 90%	gal.	——	.48
Butyl Acetate (t.c.)	lb.	.15	.16
Butyl Alcohol (t.c.)	lb.	.15	.16
Secondary (dlvd.)	lb.	.13	.14
Tertiary (dlvd.)	lb.	.14	.15
Carbon Bisulfide, Tech.	lb.	.05½	.08½
Carbon Tetrachloride	lb.	.08¼	.09¼
Cosol 1	gal.	.37	.43
Cosol 2	gal.	.42	.48
Cyclohexane	gal.	.70	.72
Cyclohexanone	lb.	.25	.27
Diacetone, Pure (dlvd.)	lb.	.14	.15
Dichlorethyl Ether (dms.)	lb.	.14½	.15
Formal (dms.)	lb.	.30¾	.31¾
Dichloropentane	lb.	.04¼	.14¾
Dicom	gal.	.30	.42
Halowax Oil	lb.	.28	.41
Heptanes (t.c.)	gal.	.17	.22
Hexalin Cyclohexanol	lb.	.20	.22
Hexanes (t.c.)	gal.	.17	.22
Isopropyl Alcohol, Ref. 99% (dlvd.)	gal.	.52	.59
Ether, Ref. (dlvd.)	lb.	.07	.08
Mersol	gal.	.43	.79
Mesityl Oxide (dlvd.)	lb.	.13½	.14½
Methyl Acetone, Syn. (dms., dlvd.)	gal.	.66½	.72¼
Methyl Ethyl Ketone	lb.	.13	.14
Methyl Isobutyl Ketone (dlvd.)	lb.	.15	.16
N-5 Pentane Mix. (t.c.)	gal.	——	.13½
N-6 Hexanes (t.c.)	gal.	——	.14½
N-7 Hexanes (t.c.)	gal.	——	.13½
Penetrell	gal.	.34½	.70
Petrolene (t.c.)	gal.	——	.13125
Picolines, Alpha, Refined	lb.	.44	1.00
Mixed	lb.	——	.34
Proprietary Solvent (dms.)	gal.	.51	.72
Propyl Acetate (t.c., dlvd.)	lb.	——	.10¾
Alcohol (t.c., dlvd.)	lb.	——	.10

SOLVENTS (Cont'd)

PT 150 Pine Solvent (dms.)	gal.	——	.44
Pyridine, Refined	lb.	.95	1.05
Quinoline	lb.	.60	1.45
Rubber Solvent (t.c.)	gal.	——	.16
Rubsol (t.c.)	gal.	——	.11875
Skellysolve B (Hexanes) (t.c.)	gal.	——	.158
C (Heptanes) (t.c.)	gal.	——	.151
E (Octanes) (t.c.)	gal.	——	.165
R (Solvent Naphtha)	gal.	——	.129
Solvent, Crude, Light	gal.	.19	.28
Solvesso 100 (t.c.)	gal.	.33	.37
150 (t.c.)	gal.	.33	.37
Sunny South Dipentine	gal.	.34½	.70
Sunny South Pine Oil	gal.	.86½	1.04
Sunray	gal.	.1140	.1600
Toluene (drums)	gal.	——	.28
Toluol (t.c.)	gal.	——	.35
Trichlorethane	lb.	.13	.13½
Triglycol Dichloride (dms.)	lb.	.63	.64
Union Thinner 1	gal.	——	.183
3	gal.	——	.183
5	gal.	——	.173
7	gal.	——	.173
2-50-W Hi-Flash	gal.	——	.41
Xylol	gal.	.35	.45

STABILIZING AGENTS (for Vinyl Resins)

Advastab No. 21	lb.	——	1.08
Barca 10	lb.	——	.80
Barium Stearate	lb.	.37	.42
Basic Silicate White Lead	lb.	.18	.19
Bunatak Polymer No. 780	lb.	——	.04
No. 5514	lb.	——	.35
BVS	lb.	——	.73¾
Calcium Ricinoleate	lb.	——	.48
Cadmium Stearate	lb.	1.40	1.44
Calcium Stearate	lb.	.35	.40
Dutch Boy DS-207	lb.	——	.54
Plumb-O-Sil A	lb.	——	.29¾
B	lb.	——	.31¾
Tribase	lb.	——	.27½
Dythal	lb.	——	.39½
Ferro 120 (dms.)	lb.	.73¼	.83¼
121 (dms.)	lb.	.68	.78
200 (dms.)	lb.	1.33	1.43
211 (dms.)	lb.	.65	.75
221 (dms.)	lb.	1.51	1.61
541 (dms.)	lb.	.35½	.45½
541A (dms.)	lb.	.81¾	.91¾
620 (dms.)	lb.	——	.77½
700 (dms.)	lb.	.48¾	.58¾
900 (dms.)	lb.	1.02¾	1.12¾
903 (dms.)	lb.	.65	.75
909 (dms.)	lb.	1.02¾	1.12¾
920	lb.	——	.98
931 (dms.)	lb.	.75¾	.85¾
1820 (dms.)	lb.	.90	1.00
Harshaw 1-V-3	lb.	.43	.58
1-V-4	lb.	.74	.89
2-V-4	lb.	.99	1.09
2-V-7	lb.	1.19	1.29
2-V-8	lb.	1.30	1.45
5-V-1	lb.	.41	.56
5-V-2	lb.	.44	.59
7-V-1	lb.	.95	1.05
7-V-2	lb.	1.00	1.10
8-V-1	lb.	1.23	1.33
9-V-1	lb.	.89	.99
12-V-5	lb.	.75	.90
128-V-5	lb.	.86	1.01
Lead Stearate, Precip.	lb.	.32	.39
Fused	lb.	——	.37
Lithium Stearate	lb.	.62	.67
Modicol N	lb.	.42	.42½
S	lb.	.30⅞	.31⅜
Sodium Silicates	cwt.	1.00	5.25
Stabelan E	lb.	1.35	1.50
XL	lbs	.55	.65
GL	lb.	1.25	1.40
HR Liquid	lb.	.67	.75
HR Paste	lb.	.85	.95
HR Powder	lb.	.95	1.05
Stabilizer No. 3	lb.	——	1.95
Stabilizer No. 42	lb.	——	.85
Stabilizer No. 52	lb.	——	1.95
Stabilizer No. 89X	lb.	——	.75
Stabilizer No. 143	lb.	——	.85
Stabilizer BC-12	lb.	——	.90
Stabilizer B-5	lb.	——	.70
Sodium Silicates	cwt.	1.00	5.25
Stabilizer CH-14	lb.	——	.65
Stabilizer CH-20	lb.	——	.65
Stabilizer E6B	lb.	——	.95
Stabilizer E-49	lb.	——	.60
Stabilizer E-98	lb.	——	.55
Stabilizer G-1	lb.	1.25	1.40
Stabilizer HR	lb.	.85	.89
Stabilizer JCX	lb.	——	.63
Stabilizer L	lb.	——	.60
Stabilizer OM-10	lb.	——	1.95
Stabilizer OM18	lb.	——	3.25
Stabilizer SN	lb.	——	.48
Stabilizer V-1-N	lb.	——	.43
Stabilizer VL-3	lb.	——	1.00
Stabilizer V-7939	lb.	——	.60
Staflex OY	lb.	——	1.20
QXMA	lb.	——	.70
Staycin 1	lb.	——	.65
Stayrite 10	lb.	.32	.37
P-10	lb.	.39	.44
15	lb.	.53	.57
20	lb.	.37	.42
22	lb.	1.40	1.44

STABILIZING AGENTS (Cont'd)

Stayrite 25	lb.	.35	.40
70	lb.	——	.70
80	lb.	——	.70
90	lb.	——	.70
Vanstay L	lb.	.33	.35
H.T.	lb.	.90	.92
S	lb.	.65	.70

STIFFENING AGENTS

Calco S.A.	lb.	.85	.88

SUN CHECKING AGENTS

Allied AA-1144	lb.	.23	.24
AA-1177	lb.	.15½	.16½
Antisol	lb.	——	.23
Antisun (Chipped)	lb.	.15½	.17½
(Slabbed)	lb.	.15	.17
Heliozone	lb.	.26	.27
NBC	lb.	——	1.55
Sonolite 100	lb.	.21	.23
127	lb.	.17	.19
Sunproof	lb.	.30	.31
713	lb.	.25	.26
Improved	lb.	.25	.26
Super	lb.	.40	.41
Jr.	lb.	.20	.21
Tonox	lb.	.52	.54

SURFACE ACTIVE AGENTS

Aquarex D	lb.	——	.78
MDL	lb.	——	.33
ME	lb.	——	.94
NS	lb.	——	.60
SMO	lb.	——	.50
WAQ	lb.	——	.25
Emulphor EL-620	lb.	——	.39½
Igepal CO-730	lb.	——	.36
CO-850	lb.	——	.36
CO-880	lb.	——	.36
Igepon CN-42	lb.	——	.25
T-77	lb.	——	.49
Sellogen Gel	lb.	——	.12¾

TACKIFIERS

Arcco 620-32B	lb.	.20	.21
716-30	lb.	.18	.19
1041-21	lb.	.16½	.17½
Galex (drums)	lb.	.15¾	.18
Indopol H-300	gal.	1.00	1.21
Koresin	lb.	——	.95
Liquid Rubber Flux	lb.	——	.14
Nilox (c.l.)	cwt.	——	14.50
Resin V	lb.	——	.23½
Rubtack	lb.	——	.12
Synthol	lb.	——	.24¾
Tackifier 1041-21	lb.	.16½	.17½
Vistac No. 1	gal.	1.00	1.21
A	lb.	.21½	.22¼
Zirex (c.l.)	cwt.	——	14.75

THICKENERS (FOR LATEX)

Alcogum AN-6	lb.	——	.05
AN-10	lb.	——	.08½
Betanol (drams)	lb.	——	.70
Emulsorex No. 5	lb.	——	.35
Good-Rite K-702	lb.	.34½	.35
K-704	lb.	.21	.22
K-705	lb.	.31	.32
K-707	lb.	.18	.19
K-708	lb.	.29	.30
K-710	lb.	.15	.16
Modicol VD	lb.	.13⅞	.14⅜
VE	lb.	.13⅜	.14⅜
Polyco 296 BT	lb.	.15	.16
296-N	lb.	.15	.16
530	lb.	.15	.16
Propylene Laurate (dms.)	lb.	.57	.67
Sodium Silicate, 41°/1:3.2	cwt.	1.00	2.10

VULCANIZING AGENTS

Selenium

Vandex	lb.	——	6.00

Sulfur

Aero Brand	cwt.	——	2.40
Blackbird (c.l.)	cwt.	——	2.85
Cloud (c.l.)	cwt.	——	2.80
Crystex	lb.	.19½	.23
Darex Dispersed Sulfur	lb.	.14	.16
Devil A (c.l.)	cwt.	——	2.40
Dispersed Sulfur	lb.	.14	.16
Insoluble Sulfur 60	lb.	12½	.13
Ko-Blend IS	lb.	——	.38½
Mist (Wettable) (c.l.)	cwt.	——	4.00
Spider (c.l.)	cwt.	——	2.80
Star (c.l.)	cwt.	——	3.25
Sulfasan R	lb.	——	1.50
Tire (c.l.)	cwt.	——	2.40
Tube (c.l.)	cwt.	——	3.25
Vultac 2	lb.	.47	.74
3	lb.	.51	.78

Tellurium

Telloy	lb.	——	2.50

WETTING AGENTS

Advawet No. 10	lb.	——	.20
No. 33	lb.	——	.48
Aerosol 18	lb.	——	.40
AY	lb.	1.00	1.20
MA 80%	lb.	.67	.72
OT 75% Aqueous	lb.	.63	.68
OT 100%	lb.	1.00	1.20
Alrosol (dms.)	lb.	——	.40
Alrosperse	lb.	——	.18
Areskap 50	lb.	.30	.38
Dry 100	lb.	.60	.72
Aresket 240	lb.	.30	.38
Dry 300	lb.	.60	.72
Aresklene 375	lb.	.42	.57
Armacs	lb.	.28	.77
Arquads	lb.	.24	.60
Emcol 5100 (dms.)	lb.	——	.37
5130 (dms.)	lb.	——	.37
Etho-chemicals	lb.	.26	.58
Kessco E-122 (dms.)	lb.	——	.49
Kreelon 8G (dms.)	lb.	.28	.30
Lecithin	lb.	.13	.17
Modicol N	lb.	.42	.42½
S	lb.	.30⅞	.31⅜
Orvus AB Granules	lb.	.16	.17
Nekal NS	lb.	——	.28

WETTING AGENTS (Cont'd)

Parnol	lb.	.13	.18
Selapon Gel	lb.	——	.13
Santomerse D	lb.	.44	.65
S	lb.	.13	.25
Sorapon SF-73	lb.	——	.18
SF-78	lb.	——	.30
Sorbit P	lb.	——	.28
Stablex G	lb.	.50	.70
Tergitol 4 (dms., dlvd.)	lb.	.30	.31
7 (dms., dlvd.)	lb.	.43	.44
O8 (dms., dlvd.)	lb.	.30	.31
P28 (dms., dlvd.)	lb.	.18½	.19
Trenamine W-30	lb.	——	.15
Vultamol	lb.	——	.17½
Wetsit Conc.	lb.	.25	.28

MISCELLANEOUS CHEMICALS

Aquarex G	lb.	——	.21
Aquasperse 30	lb.	——	.11
Arccopel W-18	lb.	——	.18
Copper Inhibitor X-872-L	lb.	——	2.01
D-Tac	lb.	——	.22
2-Ethylhexanol	lb.	.25½	.26½
Fura-Tone Resin 1226	lb.	.41	.43

MISCELLANEOUS CHEMICALS (Cont'd)

Gen-Tac Resin	lb.	——	.42
MODX	tons	.32½	.34½
Nullapon BF-12	lb.	——	.20½
BF-13	lb.	——	.26½
BF-78	lb.	——	.61½
Para Resin 2457	lb.	.04	.04½
2702	lb.	.04	.04½
2718	lb.	.04	.04½
Pigmented Filmite (dlvd.)	lb.	——	.16¾
Resorcin, Tech.	lb.	.77½	.78½
Rio Resin	lb.	.60	.62
Rongalite CX	lb.	——	.22½
Sherosope F	lb.	.17	.17¼
F-445	lb.	.17	.17¼
L	lb.	.18	.18¼
N	lb.	.18	.18¼
T	lb.	.18	.18¼
Sublac Resin PX-5	lb.	.23½	.24½
Sulfasan R	lb.	——	1.50
Synpep	lb.	.54	.60
Thiokol LP-2	lb.	.96	1.06
LP3, LP32, LP33	lb.	.96	1.06
LP8, LP38	lb.	1.25	1.37½
Tysonite	lb.	.24	.24¾
Vanfre	gal.	2.50	3.00

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POSITIONS WANTED

CHEMICAL ENGINEER—RUBBER TECHNOLOGIST. Ten years experience mechanical rubber goods, product development, rubber and plastic compounding for extrusion, molding, packing and sheet goods, technical service, application and production. Responsibility desired—Eastern location. Address Box 188-P, RUBBER AGE.

MECHANICAL ENGINEER desires position with agrgessive molding and/or covering organization. Can offer 14 years industrial rubber sales and production back-ground through management level. Broad experience with industrial, automotive, aircraft and specialty markets. Address Box 195-P, RUBBER AGE.

TECHNICAL DIRECTOR: 30 years in the industry. Manufacturing mechanical rubber, foam and dipped goods desires to relocate with small company. Will solve your problems. Address Box 201-P, RUBBER AGE.

YOUNG MAN, thirty-five years of age, currently engaged as Vice-President in charge of sales of medium sized mechanical rubber goods plant, specializing in rubber covered rolls, rubber lined tanks, miscellaneous molded and lathe-cut specialties, desires change, remaining in sales field in position commensurate with present position. Willing to relocate and travel. Has had much experience and responsibility in manufacturing end as well as sales. Address Box 202-P, RUBBER AGE.

CHEMICAL ENGINEER. Reclaim rubber dispersions and latex adhesives. Composition cork sheet—phenolic, vinyl and rubber bonded for gasket and shoe platforms. Asphalt roofing, emulsion and tile. Fifteen years responsible experience in development and manufacturing. Presently employed. Address Box 204-P, RUBBER AGE.

FOREMAN. Master Mechanic, resourceful, energetic, desires position in production and maintenance. Will relocate. Address Box 216-P, RUBBER AGE.

PLANT SUPERINTENDENT OR MANAGER with 17 years experience in all phases of molded and extruded rubber products, also mold designing and cost figuring. Address Box 219-P, RUBBER AGE.

CHEMIST, Latex dip specialist, also experienced in coagulant formulation, Plastisol development and use, and machinery problems. Would like responsible position where 13 years of laboratory and factory experience can be gainfully applied. Address Box 220-P, RUBBER AGE.

CHEMIST—Fourteen years experience in all phases of pressure-sensitive tapes, industrial adhesives, protective coatings, technical service and market development, seeks commensurate executive position. Presently engaged. Address Box 221-P, RUBBER AGE.

RUBBER COMPOUNDER: 4 years of technical and practical experience in rubber compounding and product development in the manufacture of molded mechanical, rubber products. Desire position with small or medium sized plant. Midwest location preferred. Address Box 222-P, RUBBER AGE.

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HELP WANTED—Continued

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Excellent opportunity for development chemist experienced with solvent type rubber adhesives. Small growing Eastern concern. Address Box 162-W, RUBBER AGE.

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Progressive Ohio manufacturer of high quality precision molded light mechanical rubber goods has a permanent opening for experienced project engineer. Graduate M.E. or equivalent desired. Must be capable of performing project work in method improvements involving machinery, equipment and compound processing for increased plant efficiency. Salary open.

Address Box 177-W, RUBBER AGE

SMALL MECHANICAL GOODS PLANT located in New York State has excellent permanent position, with opportunities for advancement for man 30-40 years of age, with technical and practical experience in rubber compounding and product development. Reply giving full particulars of experience and training, salary expected, education, etc. Address Box 178-W, RUBBER AGE.

LARGE RUBBER MANUFACTURER, Great Lakes area, has excellent permanent position for young man with experience in technical rubber hose design, sales development and product application work. Excellent employee benefits and pension. Our employees have been advised of this advertisement. Send full particulars of experience, education, age, salary range. Replies confidential. Address Box 191-W, RUBBER AGE.

FOREMAN—Thorough knowledge of rubber extrusion work to operate Extrusion Department in eastern rubber factory. Address Box 196-W, RUBBER AGE.

DIE MAKER—Thorough knowledge of Die Design and ability to make dies for rubber extrusion. Factory in East. Address Box 197-W, RUBBER AGE.

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Outstanding opening for graduate chemist, having three to five years experience in polymer chemistry, including rubber. Eastern location in medium size community. Write, giving full particulars regarding age, experience, education and salary expected. Address Box 210-W, RUBBER AGE.

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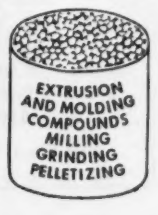

HELP WANTED—Continued

RUBBER CHEMIST—Prefer experience in the manufacturing of rubber rolls and production. Investment available. Write C. L. Tyler, Box 89, Smithton, Illinois.

CABLE ENGINEER. Graduate Engineer with experience in design, manufacturing and specifications for electric wire and cable. Write giving education and experience. Address Box 206-W, RUBBER AGE.

PRODUCTION MANAGER desired by a small rubber plant specializing in medical closures. Location near Philadelphia. Send complete resume. Address Box 208-W, RUBBER AGE.

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Excellent opportunity for graduate chemist. Two to five years experience with rubber materials desired—equivalent experience acceptable. Will work in the field of adhesives. Write, giving full particulars regarding age, experience, education and salary expected. Address Box 211-W, RUBBER AGE.

RESEARCH AND DEVELOPMENT WORK—should be mechanical or chemical engineer. New Jersey mechanical rubber goods manufacturer. Write stating experience, salary requirements. Address Box 212-W, RUBBER AGE.

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WANTED: One used 8" extruder, without motor. Must be in good condition. No dealers, please. Address Box 156-E, RUBBER AGE.

WANTED: Rubber machinery including Banbury mixers, heavy duty mixers, calenders, rubber rolls and mixers, extruders, grinders and cutters, hydraulic equipment, rotary and vacuum shelf dryers, injection molding machines. Will consider now operating or shut down plant. P. O. Box 1351, Church Street Station, New York 8, N. Y.

WANTED: Rubber mills, calenders, mixers, Banbury mixers, extruders, grinders, cutters, hydraulic presses, injection molding machines. Consolidated Products Co. Inc., 70 Bloomfield St., Hoboken, N. J.

SCOTT TENSILE TESTER for testing rubber films. Prefer Model XL but will consider larger model. Address Box 198-E, RUBBER AGE.

WANTED—Small three roll calender with or without drive with 16"-24" rolls. Address Box 215-E, RUBBER AGE.

WANTED—Used Presses, 30" x 54" minimum platen, 500 ton minimum pressure—prefer French Oil. Advise price, make, condition, etc. Address Box 217-E, RUBBER AGE.

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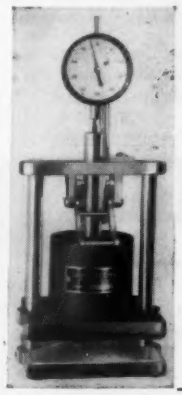

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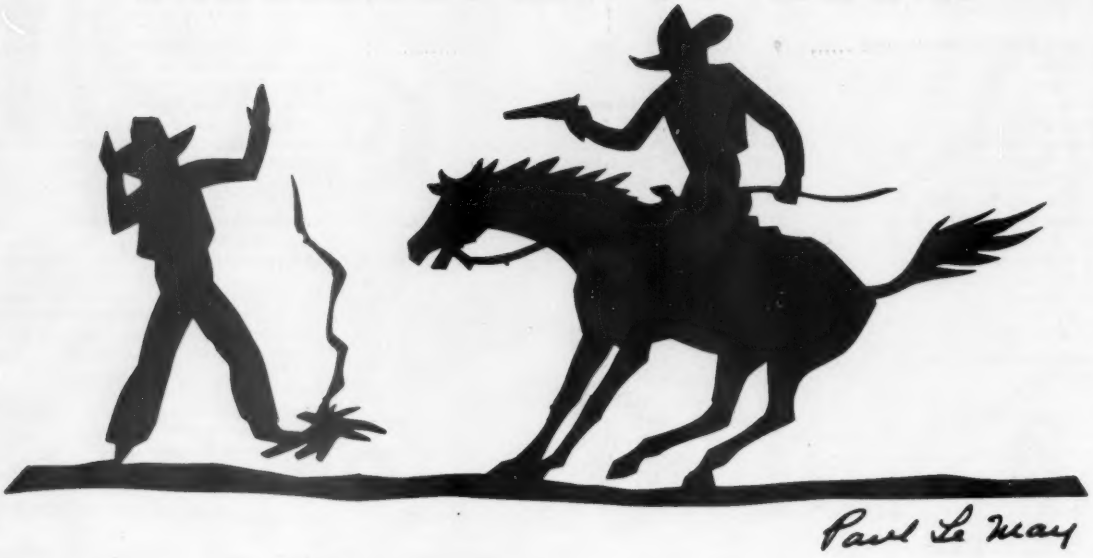

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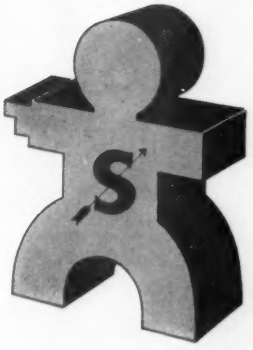

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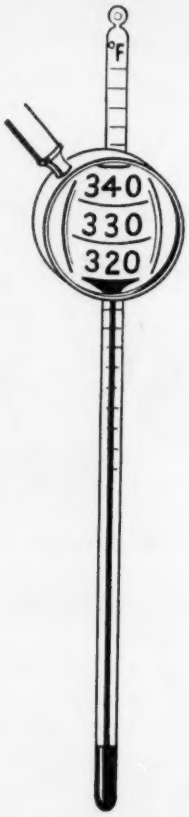

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